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Contributors to This Issue

DR. B. C. H. HARVEY, author of the leading article on the human body, is dean of medical students at the University of Chicago. From many years' experience in medical work in Africa, DR. J. B. MCCORD writes of the Zulu witch doctor and his methods. The most comfortable type of underwear for summer heat and winter chill is discussed by EDGAR R. CLARK, an industrial fellow of the Mellon Institute, University of Pittsburgh.

MRS. RUTH H. KUEVER is the wife of a university professor, has done graduate study and is the mother of the children discussed in her article on dietary diplomacy. Dr. Amy Daniels, nutrition specialist, gave her technical aid in preparing the material for her article. DR. RICHARD M. HEWITT is assistant editor of *The Journal* of the American Medical Association. DR. HARRY C. SOLOMON is an eastern neurologist and psychiatrist.

JAY G. SIGMUND supplies HYGEIA with a health narrative. He is a well known author and poet. H. REID HUNTER is superintendent in charge of high schools at Atlanta, Ga., where the interesting work of training "black mammies" is being carried on. MILDRED SHERIFF, a teacher, gained inspiration for the article on sight conservation by taking a course in eye hygiene at Western Reserve University and by visiting the sight saving classes of the Cleveland public schools.

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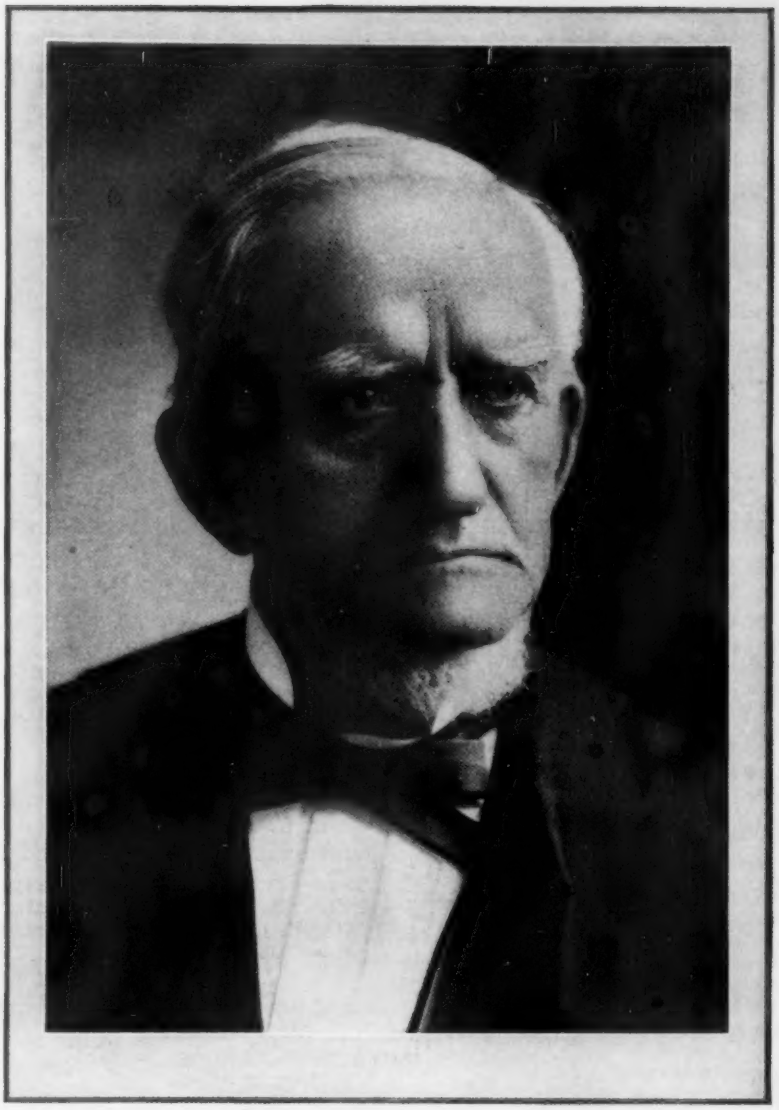

HEROES OF AMERICAN MEDICINE

XIV. Nathan S. Davis I

NATHAN SMITH DAVIS I, father of the American Medical Association, was born in Greene, N. Y., Jan. 9, 1817. The first sixteen years of his life were spent on a farm. He then attended Cazenovia Seminary and thereafter began to study medicine in the offices of two physicians. He graduated from the College of Physicians of Western New York when he was 20 years of age, writing a thesis on the subject of animal temperature which was selected by the faculty to be read at the commencement exercises.

For ten years Dr. Davis practiced medicine at Binghamton, N. Y., becoming secretary of his county medical society and representing that society in the New York State society. Almost immediately he began to promote an interest in medical education, which led to the calling of a national medical convention in New York in 1846, from which there developed the American Medical Association. He moved to New York City in 1847, lecturing on medical jurisprudence and on anatomy, and became editor of the magazine called Annalist. In 1849 he moved to Chicago and began to teach at once in Rush Medical College, promoting the opening of several hospitals, founding the Chicago Medical College, which later became the Northwestern University School of Medicine, and promoting constantly advancement in the medical curriculum. He helped to organize the Chicago Medical and Illinois State Medical societies, to found Northwestern University, the Chicago Academy of Sciences, the Chicago Historical Society, the Illinois State Microscopical Society, the Union College of Law and the Washingtonian Home. He edited the Chicago Medical Journal, 1855-1859. He was editor of The Journal of the American Medical Association from its establishment in 1883 until he resigned in 1889.

Several books on the practice of medicine and on medical education bear the name of Dr. Davis. He was widely known as a medical lecturer and as an orator. It was said of him that every moment not utilized in sleep was utilized in work. Hours were spent away from his practice in the library and in the editorial office. He died at the age of 87 years on June 16, 1904, and is remembered as one of the greatest practitioners of medicine ever developed in the United States.

THE NATURAL HISTORY OF

The Human Body

By B. C. H. Harvey

THE natural history of the human body is at the foundation of hygiene, of medicine, of eugenics and of all other schemes of human betterment. All medical study and investigation center in it. Medicine is concerned especially with those abnormal changes that result from injury or invasion by bacteria. But there are also other changes that are not accidental, but that go on in all individuals alike. These are the changes incident to growing up and growing old.

We are all familiar with some of these changes, for we have watched the infant growing to maturity; we have seen the natural force of the strong man beginning to abate, and we have compassionated the dim eye and faltering step of old age. Such changes follow a regular sequence, the same for all of us. About seventy years are required to run through the whole series of them from the beginning to the end, and such a series of changes constitutes one cycle of the natural history of the human body.

This history commences, as we all know, before birth. Indeed, anatomists are accustomed to divide the history up into nine periods, of which three precede birth and six follow it. The three periods before birth are: the period of the egg, the period of the embryo, and the period of preparation for independent life.

The first period, that of the egg, lasts fourteen days. The human body, like all other animal bodies, begins as an egg. The human egg is exceedingly small—much smaller than the hen's egg, because it contains practically no yolk or food. It would take more than one hundred of these eggs side by side to cover an inch. A microscope is required to see them clearly. They are not all the same size, but they are human bodies, "germ bodies," and they have the family peculiarities. Thus a boy is often like his father in the color of his eyes, the shape of his hands, and in his way of thinking. These characteristics are all present in this tiny body, which consists of a mass of semifluid substance with a kernel, or nucleus, in the center, that is a little more solid than the rest. Such a mass of substance, with its nucleus, is called a cell.

The human body starts as one cell. The body of a grown man is made up of about 100 million million cells. The number is only a

THE NINE PERIODS OF HUMAN HISTORY

1. *The Egg (14 days).*
2. *The Embryo (from 14 days until the end of the third month of prenatal life).*
3. *The Fetus (from the end of the third month of prenatal life until birth).*
4. *The New-Born (the two weeks of adjustment following birth).*
5. *The Infant (from two weeks until twelve or thirteen months, when the baby can stand erect).*
6. *The Child (from infancy to 14 years).*
7. *The Adolescent (from 14 to 28 or 29 years).*
8. *The Adult (from 28 or 29 to 60 years).*
9. *The Aged (from 60 years until death).*

rough estimate. Big people have a few million million more, and little people a few million million less. In the process of growing, there is an enormous increase in the number of cells. This multiplication takes place in an interesting manner. The first single cell splits into two. Then there are two cells, each half the size of the first one. The fluid around these two small cells contains nourishment, which they absorb through their surfaces, and they change this nourishing fluid into their own proper substance and so grow larger. They cannot grow much larger and continue to live by absorption through their surfaces because the larger they get the less surface they have in proportion to their bulk. So, soon each of the two cells divides again, and this process of division keeps up until the enormous numbers of the later period are attained in due course. The mass of cells looks for a time something like a blackberry, except that it is colorless.

Differentiation of Cells

At first the cells seem to be all alike. Each of the first pair seems to be identical with the other and with the antecedent cell which has split into two. But soon the successive divisions produce cells that are not exactly alike; they differ in size and in appearance, and at the end of a hundred divisions the myriad cells produced show enormous differences. This process of gradual differentiation through cell divisions that are unequal is the key to the formation of the adult body. Through it the various parts, so different from one another, and each so well adapted for doing its own special work, are gradually perfected each in its own place, and connected up by nerves and arteries into an admirably working complete machine.

By the end of fourteen days it becomes clear that only one little part of the mass is going to be the body; the other cells surround it and protect it, and help feed it, or attach it to the tissues of the mother. The part that is going to be the body is called the embryo.

Now begins the second period, that of the embryo. But the embryo does not yet look like a human body. None of the parts or organs of the adult are superficially apparent. The embryos of all the higher animals look essentially alike. All of them, including man, resemble fishes, for they develop gill arches and gill clefts. The human embryo possesses a considerable tail.

It is not until it is about fifty days old that the body takes on a clearly human appearance at the commencement of the third period, that of preparation for independent life. This period is characterized by the formation of the human parts and organs. Cell divisions are rapidly repeated and they are unequal so that there appear at one place nerve cells, at another bone, at another muscle cells. The cells are becoming specialized, the muscle cell for producing movements, the nerve cell for carrying nerve currents, the stomach cell for digestion, and so on. There is a division of labor among them, each kind of cell undertaking to do one part of the body work.

This specialization of cells is slow. It requires about seven months, but till it is well advanced no part can do its share of the body work and so the body cannot live independently. When a cell has once become entirely specialized, it can do one thing well, but it has given up forever the power to do other things. The muscle cell can never become a stomach cell, though cells antecedent to it could. Its special form and special power have been attained by the loss of most of the infinite potentialities that it originally possessed. Henceforth the digestive cells must prepare its food for it and the blood serve it, or it must die.

By the end of ten (lunar) months each part and organ is specialized sufficiently to do after a fashion its part of the work necessary for independent life, and the child is born. Of the six periods that follow birth, the first is that of the new-born. The organs just specialized take over their work. Thus the lungs begin to provide the rest of the body with oxygen, the stomach and intestines begin to provide the other parts with food.

After two weeks of adjustment begins the fifth period, that of infancy, or preparation for assuming the upright position on two feet. The infant can manage this usually at 12 or 13 months, passing thus into the sixth period of childhood. This is characterized mainly by growth, effected by continued increase in the number of cells. Cell division is still active in most tissues though it has ceased in the nervous system. During childhood there is some increase in size in the nerve cells, but there is no further division.

At about 14 years of age the period of childhood passes into that of adolescence, which is characterized by the perfecting of function through practice. Growth is gradually ceasing, cell divisions are infrequent.

Period of Great Power

At 28 or 29 begins the period of the adult—that of the greatest power and activity. All cells do their daily work with maximum efficiency, but they are losing their tendency to divide. They seldom divide without special provocation. Nerve cells and muscle cells cannot divide at all, but most others retain a latent power of division, which is called into activity by injury or by the death of some individual neighbor cells.

It is interesting to note that cells have different periods of duration of life. Nerve cells live

seventy years, so they do not need to divide after birth. Red blood cells on the other hand live only two or three weeks, hence they keep their power of division. The daily loss of worn-out blood cells requires that during adult life about one million million be formed by the process of cell division every twenty-four hours. They continue to divide as long as life lasts.

The last period, that of old age, begins at about 60. The cells begin to be sluggish, even in the performance of their special functions, and the bodily strength decreases. The cells lack energy necessary for further division; even injuries cannot always stimulate them to it. Wornout joint cartilages are not repaired. Soon some essential tissue will fail to do its daily work well enough, and general death will follow, for each part being specialized depends on all the other parts, and the failure of one is fatal to all.

Following Injury, Cell Division Is Resumed

The essential features of this history may be stated briefly. Growth of the body is a matter of repeated cell divisions by which the one celled germ body becomes the myriad celled body of the adult. These divisions are repeated rapidly during the early years of growth. They are relatively few in the adult. Sooner or later they cease in all tissues, as the body becomes old. Some integrating power directs these divisions, for they occur in the primitive stages now here, now there, in rapidity and quality such as are required to build up a body complete in all its parts. Then they cease, unless injury or destruction of some part mars the completeness. If it does, cell division is resumed in amount just sufficient to repair the defect and restore completeness. Then it stops again.

Should cell divisions continue after completeness is restored, tumors would be formed, often malignant ones like cancer. Since these cell divisions are usually unequal, most cells become specialized, forming special tissues and organs. No one of these can live alone; each requires the help of others.

But one group of cells is never specialized. From the beginning one cell of this group is exactly like its twin and hence exactly like the original germ body from which they came. These are the germ cells. They remain apart, steadfast among the specializing body cells. Each retains the full potentiality of human life. They multiply by division, but remain the same.

To the biologist the germ cell is worthy of the greatest reverence because, unlike the body cells, it is the carrier of eternal life. The body cells will perish but the germ cell will endure. The body cells wax old and are discarded like outworn garments as the generations pass, but the life of the germ cell goes on, clothing itself anew as sons succeed their fathers, and its years need know no end. The germ cells are the only cells that seem capable of living in the human body forever. But, after a certain number of divisions, they also become sluggish. Divisions no longer occur; they become run down.

The human body is like a clock. It is wound up and it runs down. Some clocks run down in one day, some in eight days, some in thirty days. Some animal bodies run down in fifteen years, as in dogs. Some in twenty-five years, like horses. The human body runs down in about seventy years.

What winds up the human germ cell for its seventy year cycle? It is clear that only the germ cells can be wound up. All other cells are specialized and cannot live alone.

Only one thing seems able to supply the energy needed for another cycle and to rejuvenate the waning life, and that is the reversal of division. It is the union of two cells. It occurs only in germ cells. When two of these unite completely only one cell results, but that one is wound up. It can go on actively for seventy years. It is the germ body described. It is usually said that the body begins to live then, but that is not true. It begins to die then.

When did the germ cell begin to live? The egg cell was alive and became a human body. It resulted from the union of two. They were alive and each was a potential human body. Anatomists have known since 1651 that all germ cells come from others before them, and they in turn from others, and the series is infinite. Their continuity links us with all our ancestors, even the most remote. Our life is their life continued. Every human body has been alive for immeasurable past time, but only as a series of germ bodies. Each has come by a long road that it has taken millions of years to travel. There have been found human bodies 125,000 years old. We were alive then. But they were a little different from us, though picturing for us our ancestral germ bodies. Evidently germs change too, but with infinite slowness.

What of the Future?

Long before that, geology shows that there were no men on earth, only animals, but we were alive then as germs—animal germs. This long line of ancestral germ bodies goes back to the beginning of life on the planet.

Our past is almost infinite. What of the future? The long series of germ bodies will go on. They have changed slowly in the past, constantly being made over and steadily approaching the present form. Change is constant. It is going on. It will go on. We know not what we shall be, but in the light of our past we must expect the age long progress to continue. As cycle follows cycle the generations will perish but our life will endure, building ever more stately mansions for statelier souls.

The ZULU Witch Doctor

By J.B. McCord

This lady witch doctor does not treat disease. She "smells out" the person who has bewitched the patient and advises the sick man where to go for treatment to counteract the evil magic.

THE most picturesque character in Africa today is the Zulu witch doctor and medicine man. He is a relic of a bygone age but he is still present, very much alive and active. He practices surgery, medicine and midwifery and there are a hundred million people in Africa who have him as their only medical help in time of sickness.

His surgery is simple. He cures a chronic headache by making an incision through the scalp and scraping the bone. The cure is temporary and requires to be done repeatedly.

In many painful conditions he makes incisions through the skin over the area affected and rubs his medicines into the incisions so that the medicine may go straight to the seat of the disease. Such treatment often relieves pain, acting as a counterirritant.

Also Sleight-of-Hand Artist

On one occasion a native doctor operated for a chronic cough. He made an incision over the sternum and removed a piece of pigskin, which he showed to the patient as the cause of the disease. This doctor was something of a sleight-of-hand artist.

As a surgeon the Zulu doctor is fairly modest, as a rule confining himself to incisions through the skin. In some cases, however, he undertakes major operations with uniformly disastrous results.

In the field of internal and external medicine the Zulu doctor shines. The Zulu recognizes a natural cause for disease in some cases, such as a spear thrust or the clawing of a lion. Common colds and other minor ailments may "come of themselves." In the great majority of cases of serious illness, however, he believes that he has been bewitched and he does not recognize a clear distinction between magic and poison. A poison put in his food or beer may cause sickness. Likewise a charm put in his path may exert its influence on him as he walks over it and may cause an illness. The magic medicine may be thrown on him as he passes or administered in a variety of ways, physical or occult.

Tries to Counteract Evil Magic

The witch doctor shares this belief and encourages it in his patient. It is his province to discover the nature of the magic used to cause the illness, to point out the person who has used the magic and to concoct and administer a more potent charm that will counteract the evil magic and bring about the relief of the patient's trouble.

The Zulu does not credit nature with healing power. He must be cured. Therefore when the witch doctor administers his medicine and the patient recovers the witch doctor gets the credit and his prestige increases.

Nature provides the witch doctor and medicine man with a large variety of substances with which to make his medicines. He knows of many emetics and purgatives and counterirritants, and he appears to know of plants that have a profound physiologic action. He administers his medicines in a bold and fearless manner. If a little medicine is good, more medicine is better. His doses are large, usually harmful and often fatal.

Zulu women do man's work from childhood. They carry heavy loads and work in the gardens, so that the bones of the pelvis approximate those of man and the muscles are overdeveloped. Hence their difficulties in time of childbirth.

He believes that the disease is something that has entered the patient and he administers emetics and purgatives in the hope of getting rid of it in that way. The patient realizes that the medicine is powerful and that he is getting rid of something.

But the greater number of medicines are given for their magic properties. A medicine is supposed to give to the patient the properties of the plant or animal from which it is made. If made from the body of an elephant it gives the patient great strength. Medicine made from the body of a lion gives the patient boldness and a fierce look, so that people will respect and fear him.

Human Victims May Be Sacrificed

Human fat is supposed to make the most potent magic medicine, but the human victim must be killed by breaking the neck and blood must not be shed, if the best results are to be had. Many cases are on record in which Zulu witch doctors have killed human victims in this manner and for this purpose.

The fat of various animals is also used. The dried body of a snake or a lizard is used as a remedy for witchcraft. The body of the animal is burned and the ashes are used for treatment, as they are supposed to contain the condensed virtues of the whole animal.

A Potent Charm

To make an especially strong charm many medicines are often mixed together. A fellow missionary handed me a dose of medicine that a Zulu doctor had sent to cure a patient who had a high fever. It contained, among other things, bits of snake skin, bird feathers, porcupine quills, horse hair, dead insects, bits of bark, excreta from animals and other substances ground up so fine that we could not distinguish their nature. This dose would fill a tablespoon and was to be washed down with a bottle of beer.

These photos of the actual medical and surgical procedures of an African witch doctor and medicine man have never before been published. They were taken by Dr. J. B. McCord with his motion picture camera.

Dr. Hlambesinye Shangase (center) is the richest and most famous native medicine man in Natal. He is a witch doctor as well. Some of his practices are shown in the accompanying series of photographs.

Dr. Hlambesinye Shangase treating a patient by the use of emetics (upper left). The medicine man treating a case of tuberculosis of the knee joint (upper right). He has made incisions over the joint and is rubbing into the cuts an intensively irritating medicine. Dr. Shangase (lower left) directing his attendant as he draws out the sickness in the arm of the patient by suction through a horn. The girl (lower right) suffered from chronic headache. Dr. Shangase is cutting onto the skull and scraping the bone. His knife is a sharpened corset steel.

The Zulu doctors have many methods of administering medicines and treating disease. A case was reported to me of a Zulu doctor who had a pot of boiling medicine. With a brush he applied this to a girl's chest and back. It was many weeks before she recovered from the burns.

A boy had a brain fever. The auditory canal offered a direct path to the interior of the head. The Zulu filled the ears with some powerful medicine. The boy recovered but his hearing was destroyed.

A case was reported in the public press. The doctor wanted to give his patient a sweat. He built a fire in a hole in the ground. Later he drew out the fire and while the ground was still warm he put his patient in the hole and covered him with a bullock hide. The patient got his sweat but when he came out he was dead.

Suggestion doubtless plays a large part in the recovery of those of the Zulu witch doctor's patients who recover—suggestion together with the healing power of nature and a rugged constitution. Does the Zulu doctor's treatment ever

help in any other way in a case of serious illness? I do not know. I have never seen a case in which it did.

Witchcraft Is Africa's Religion

The witch doctor or medicine man in Africa cannot read or write; he is totally ignorant of the cause, nature and rational cure of disease; he is superlatively superstitious, but he is no fool. He is the virtual ruler of the native races of negro Africa. He is the representative and leader of Africa's universal religion; that is, witchcraft. This religion of witchcraft is the fountain head of all of Africa's immorality, inhumanity and heathen degradation. It is the great stumbling block in the way of Africa's progress.

Among the Zulus the prevalent diseases are much the same as among civilized races. However, in my practice of twenty-eight years among the Zulus I have seen appendicitis only three or four times, cancer perhaps twenty times, gallstones not at all and gonorrhea not often.

In childbirth the native races in Africa suffer the most and the need for medical help is the greatest. There is a widespread impression that among primitive and savage peoples childbirth is a physiologic process involving little discomfort and no danger. I feel entitled to challenge such a statement. Several illustrative cases stand out prominently in my memory.

I was called twenty-five miles to a case of labor. As we came in sight of the kraal at midnight we heard the death wail arise. The woman had died, undelivered, from pain and exhaustion, after a week of fruitless suffering.

In another case which I attended the friends stated that the woman had been in labor ten days and had not passed urine for a week before I was called. The child was easily delivered with forceps but the mother died from exhaustion twenty minutes after delivery.

I was called to another case thirty-five miles from town. It was stated that the woman had been in labor for a week. The dead child was easily removed. The mother died from exhaustion half an hour later.

A woman was brought into the mission hospital after being in labor for a week. The head was impacted in a narrow pelvis. She died before the child could be extracted.

Many other cases of death in labor or immediately following have come under my personal observation. In most cases death has been due to long delay while the Zulu doctors and midwives have been making fruitless efforts to extract the child. A multitude of such deaths not in my own practice have been reported to me. In my opinion childbirth is responsible for more deaths and more invalidism among Zulu women than any other one cause. I believe that this is also true among the hundred million natives in the rest of negro Africa.

Hundreds of Zulu women have been attended by me who would undoubtedly have died if the cases had been left to nature or to the native doctors. Such cases have included abnormal presentations, malformations of the child, contracted pelvis, obliteration of the birth canal by scar tissue, failure of labor pains and complete failure to expel the afterbirth. This last is a common cause of death.

Failure of labor pains is very common. It is usually due to resistance to expulsive efforts offered by a contracted pelvis or a stiff perineum. I attribute this to the fact that Zulu women do man's work from childhood, carrying heavy loads and working in the gardens, so that the bones of the pelvis approximate those of a man and the muscles are overdeveloped.

A common practice of the Zulu midwives is to gather round a woman in labor with stout sticks and if she cries out overmuch or refuses to bear down they beat her with the sticks. Possibly they may sometimes save life in this way by encouraging a woman to help herself.

A common practice is to tie a cloth or rope round a woman's waist and twist it up tighter with each pain. This is to help the pains and to prevent the child's retiring after each pain.

Great Loss of Life in Childbirth

It is hard to estimate how many women in Africa die annually in childbirth or as a result of childbirth. It is hard to estimate how many women in Africa are crawling about with conditions due to childbirth that might be rectified or prevented. It is hard to estimate how many cases there are of needless death or invalidism due to other causes. It must run into the hundreds of thousands. And life is as sweet to them as to us.

This race of mankind, a hundred million strong, which has fallen among thieves, really needs a Good Samaritan people to come to its help. How?

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I was called to another case thirty-five miles from town. It was stated that the woman had been in labor for a week. The dead child was easily removed. The mother died from exhaustion half an hour later.

A woman was brought into the mission hospital after being in labor for a week. The head was impacted in a narrow pelvis. She died before the child could be extracted.

Many other cases of death in labor or immediately following have come under my personal observation. In most cases death has been due to long delay while the Zulu doctors and midwives have been making fruitless efforts to extract the child. A multitude of such deaths not in my own practice have been reported to me. In my opinion childbirth is responsible for more deaths and more invalidism among Zulu women than any other one cause. I believe that this is also true among the hundred million natives in the rest of negro Africa.

Hundreds of Zulu women have been attended by me who would undoubtedly have died if the cases had been left to nature or to the native doctors. Such cases have included abnormal presentations, malformations of the child, contracted pelvis, obliteration of the birth canal by scar tissue, failure of labor pains and complete failure to expel the afterbirth. This last is a common cause of death.

Failure of labor pains is very common. It is usually due to resistance to expulsive efforts offered by a contracted pelvis or a stiff perineum. I attribute this to the fact that Zulu women do man's work from childhood, carrying heavy loads and working in the gardens, so that the bones of the pelvis approximate those of a man and the muscles are overdeveloped.

A common practice of the Zulu midwives is to gather round a woman in labor with stout sticks and if she cries out overmuch or refuses to bear down they beat her with the sticks. Possibly they may sometimes save life in this way by encouraging a woman to help herself.

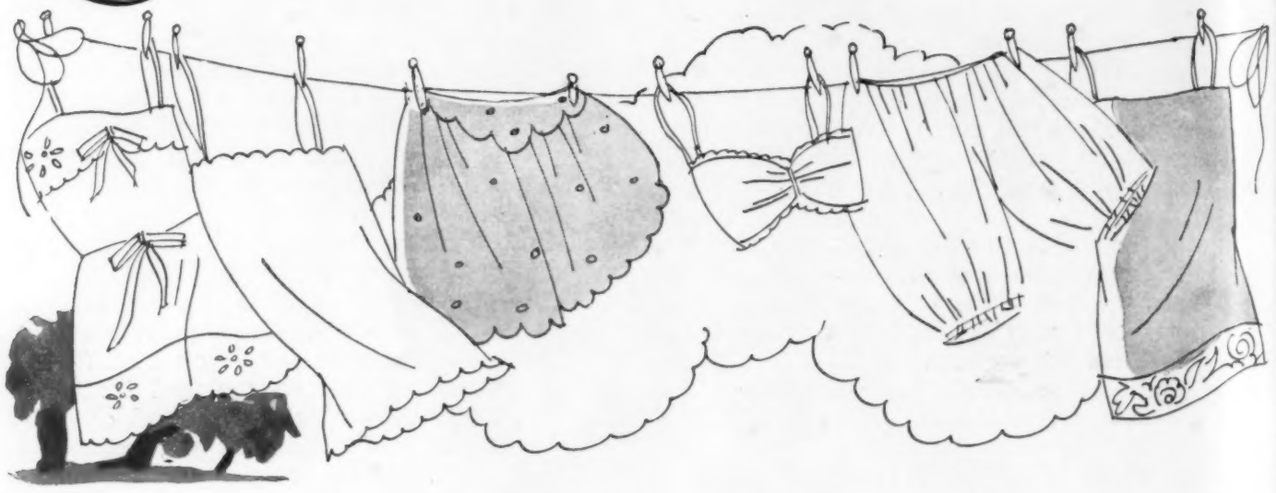
A common practice is to tie a cloth or rope round a woman's waist and twist it up tighter with each pain. This is to help the pains and to prevent the child's retiring after each pain.

Great Loss of Life in Childbirth

It is hard to estimate how many women in Africa die annually in childbirth or as a result of childbirth. It is hard to estimate how many women in Africa are crawling about with conditions due to childbirth that might be rectified or prevented. It is hard to estimate how many cases there are of needless death or invalidism due to other causes. It must run into the hundreds of thousands. And life is as sweet to them as to us.

This race of mankind, a hundred million strong, which has fallen among thieves, really needs a Good Samaritan people to come to its help. How?

Underwear AND



CLOTHES may make the man, but underwear makes him comfortable. A good outward appearance is a business and a social asset, but so is inward comfort from the unseen underwear. Worn next to the skin as it is, every detail about the underwear is important.

Now there are several different explanations for primitive peoples having taken to the wearing of clothes. One is that given in the story of Adam and Eve. Another is that man's tender skin required protection from the bites of insects. More probable than either, however, is the theory that primitive man came to believe that he looked better when dressed. The clothes of savage peoples are largely decorations. Strange to say, protection from the weather seems to have been a minor factor in the early evolution of wearing apparel. Many savage races got along well with little if any clothing in spite of severe weather conditions.

Cannot Dispense with Clothing Now

Whatever the relative merits of these different explanations the fact is that people did take up the clothes habit, and clothing cannot be dispensed with now. Under the circumstances it behooves modern man to try to wear the types of clothing that are most healthful. In the long run, the most healthful clothes are also the most comfortable. The proper selection of underwear is a great help toward putting up a proper conventional appearance and yet being comfortable.

Opinions as to the characteristics of healthful clothing and particularly healthful underwear have changed considerably within the last twenty years. People realized that they had been wearing too many clothes and fortunately Dame Fashion has sided with the hygienists in this matter.

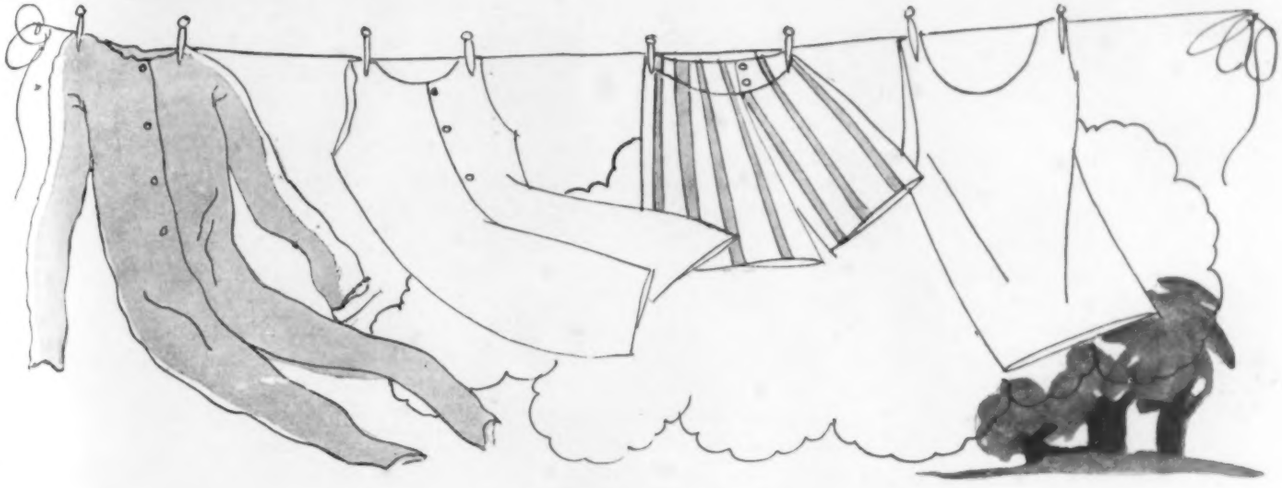
Body Needs Ventilation

The human body has often been compared with an automobile engine. One burns food and the other gasoline, but each gets from its fuel not only energy in a form suitable for doing work, but also the heat necessary to keep up proper operating temperature. In cold weather this heat, which is produced incidentally to the conversion of fuel into work, scarcely suffices in either case to maintain the desired temperature. Coverings are put over the engine radiator, and its cooling action is restrained by cutting down the amount of water that flows through it. Heat is thus conserved and the engine warms up. In the more modern types of automobiles the regulation is accomplished automatically. However, changes must be made from day to day and from hour to hour or overheating will result.

The clothing is the covering over the human radiator, and while the body does have means for regulating the flow of blood through the blood vessels just under the skin, there is no automatic control over the clothing. Underwear cannot readily be taken off in response to temperature changes during the day or on going from outdoors into a warm room, and in a sense the wearing of overwarm underwear is like putting a permanent false front before an automobile radiator.

Health

By Edgar R. Clark



In warm weather the conditions are somewhat different. Both the engine and the body produce too much heat, and in each case provision must be made for the disposal of the excess. The covers are removed from the automobile radiator, and every care is taken to see that the water circulation is free and unimpeded. All the covering cannot be taken from the human radiator, but some of it can, and special provision should be made for ample ventilation of such types as are used. Both the nature of the fabric used for underwear and the way in which the garments fit affect the freedom with which the blood in the human radiator may be air cooled.

In perspiring the body does something that the automobile cannot do. Evaporation of water absorbs much heat, and for the full enjoyment of this cooling process abundant air circulation is necessary. Well ventilated underwear is desirable at all times, and certainly no underwear can be cool that does not have this virtue.

Half Gallon of Perspiration a Day

Considerable amounts of heat and moisture are involved in the human cooling process. No exact figures can be given because prevailing conditions have much to do with the amounts produced, but it may be said that an adult man will produce about half a gallon of perspiration a day in summer and will give off enough heat every hour to bring a quart of water to the boil. This heat and moisture must pass freely through the underwear if comfort is to be maintained in hot weather. Here comfort and health are certainly closely combined, because the human body cannot stand much undercooling in warm weather without ill effects.

Studies of the scientific principles of ventilation have confirmed and expressed in figures the common observation that the cooling power of the air includes not only its temperature but its humidity and rate of movement as well. A dry, breezy day feels cooler than one on which the air is humid and still. The mercury thermometer might well read the same on both days, but in the first case the human thermometer will read a distinctly lower temperature in terms of comfort. Hence if the underwear retains heat and moisture the wearer will feel warmer than would otherwise be the case, not only because the air next to his skin is warmer but also because it is more humid and stagnant.

Measuring the Coolness of Underwear

By the use of a suitable apparatus the coolness of underwear fabrics may be measured. Such an apparatus consists essentially of an electrically heated metallic unit intended to be operated at the temperature of the body. This is covered with the cloth in question, and by the use of suitable meters, the amount of electrical energy needed to keep up the constant temperature is measured. By the use of known physical relations, the heat retaining value of the cloth may be numerically expressed.

Such measurements show that the familiar nainsook used so commonly for men's and children's underwear is very cool. Although more sheer, the closer woven muslin used for women's cotton underwear is somewhat warmer. The

same is true of closely woven mercerized fabric, or broadcloth, as it has come to be called. As a group the knitted cotton fabrics are warmer than those that are woven. It takes a very thin knitted fabric to be as cool as nainsook.

Rayon, silk and wool are all warmer than cotton. In fact, the popularity of rayon and silk for underwear is due more to their beauty and feminine appeal than to their true scientific utility.

The coolness of garments can best be determined by actual wearing tests on human subjects. The way in which the garments fit and move to and fro with motions of the body has a great effect. A numerical expression can be obtained by determining the temperature of maximum comfort for the subjects clothed only in the undergarments or in various combinations of under and outer garments. Maximum comfort in a temperature sense is achieved when the body loses just the right amount of heat to maintain its normal temperature with the least strain on the temperature controlling mechanism. For a naked man, this temperature in air of ordinary humidity and stillness is about 82 F., which is a good temperature for bathrooms.

For a man clothed only in a cotton union suit constructed principally of woven fabric, the temperature of maximum comfort is not measurably less than this, proving that such garments are indeed cool. Some of the specialties and novelties along this line will be found to be not so cool, and as a class close fitting knitted undergarments will be found to be warmer when worn than experiments on the cloth alone indicate.

Woven Cotton Is Coolest

In fact, it appears that the introduction of woven cotton underwear was a great step toward human comfort in warm weather. Such fabric, particularly in the nainsook form, which permits of ventilation through itself, also enables the making of loose fitting underwear which provides ventilation around the garments.

With our present well heated homes, offices and workrooms and with our closed automobiles and other modern luxuries, it is comparatively easy to keep away from cold weather. Few of us, however, can escape warm weather when it comes along, and then coolness in underwear is of obvious importance. In fact, considering summer humidities, warmth is to be avoided in all summer clothing. Temperatures down to about 65 F. can be withstood without feeling cool, and when a little extra warmth is needed, a piece of extra outer apparel may be added.

Men especially may suffer from overheating even in winter. The maximum comfort temperature of a man clad in the customary outer apparel and accessories and in a cotton union suit for underwear is about 70 F. This is widely accepted as a standard for indoor heating. Yet when many people are together in a poorly ventilated room the temperature frequently rises to 80 or more. There is not much that a man can do about it. If he opens a window, there is always some one present who considers a draft to be dangerous, even though it is really bringing in invigorating fresh air. He can help himself by wearing light underwear, however, and this is probably the strongest reason for the growth of the custom of wearing the same underwear all the year round.

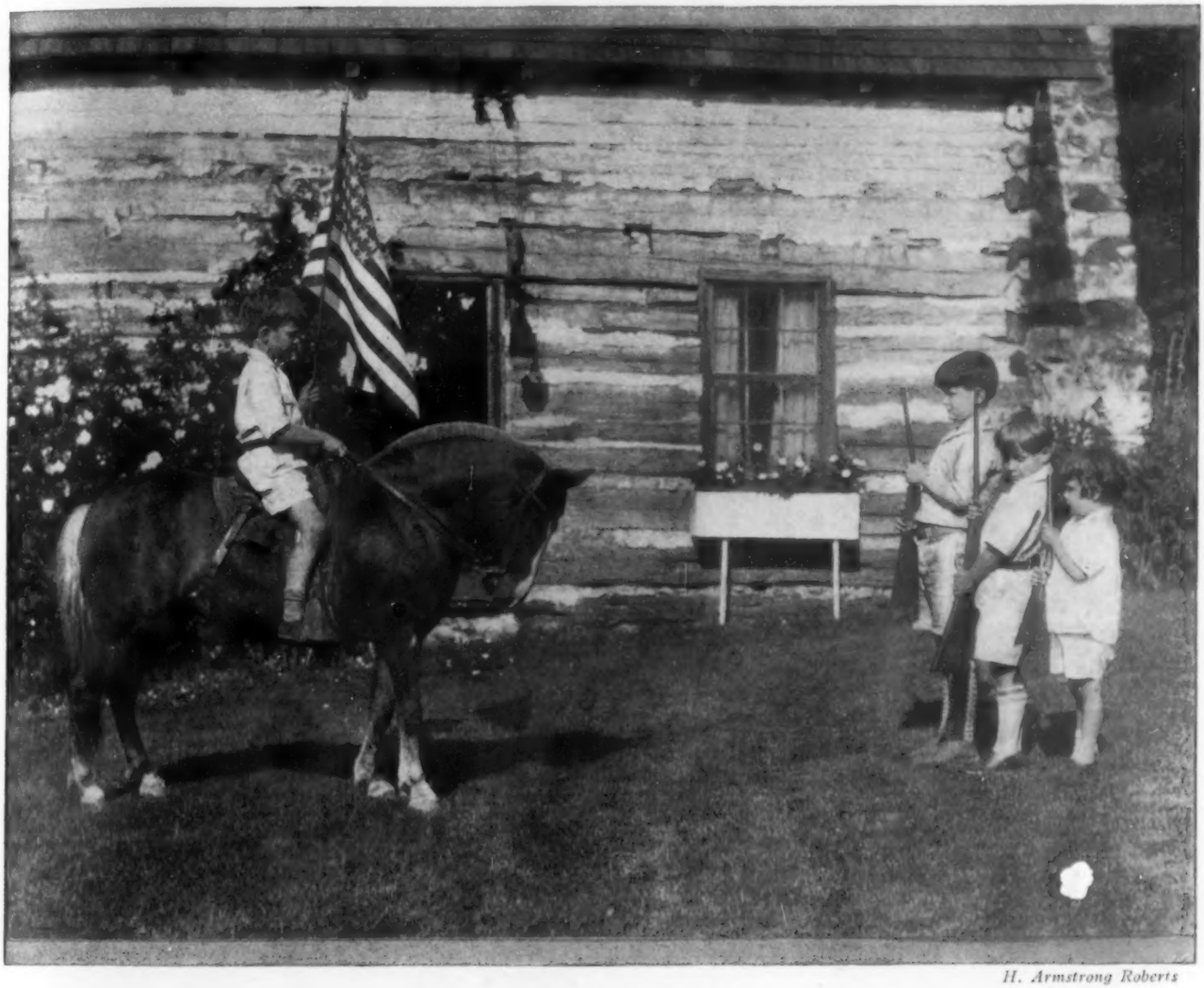
Warm Underwear Means Poor Ventilation

Coolness and free ventilation in underwear go hand in hand. The simplest way of making clothing warm is to make it so that it retains air. The making of underclothing that is warm and that at the same time is fully ventilated is an unsolved technical problem. Poorly ventilated underclothing gets damp and stays damp, and dampness in underclothing is particularly undesirable when the weather is cool. Such clothing also becomes odorous from undried perspiration, and the products formed may well be skin irritants. Certainly the cloth rots under such conditions. The flabby, pale condition of the skin after being covered with adhesive tape for a time is only a local case of what happens when large areas of the skin are cut off from their quota of fresh air.

The expression frequently heard, "Take off your coat or you will feel cold when you go out," is an instance of the interesting human process known as acclimatization. This is commonly observed in every-day life. The temperature that the senses determine is partly dependent upon what one has been used to. The man who wears warm underwear indoors accustoms his body to artificially high temperature levels and outdoor coolness is all the more felt on that account. Clothing is inanimate; it cannot change itself with the weather or on going from indoors into a cooler outdoor temperature.

This fact of human physiology shows that even those whose work and conditions of life justify the use of warm underwear in the coldest weather need not fear to change their underwear repeatedly in accordance with the day's temperature and activities. Such changing is really a help to the automatic natural temperature controlling system. The older idea that warm underwear once donned in the fall should be worn until the weather becomes "settled" in the spring does not seem to have any actual foundation in fact. Present styles of warm underwear are not sometimes warm and sometimes cool; they are always warm. They do not maintain the body at an even temperature as is sometimes claimed. The body's own mechanism for doing that is far more effective.

JULY 4—*in the Modern Manner*



H. Armstrong Roberts

ALMOST a score of years has passed since the American Medical Association first initiated its campaign for a safe and sane Fourth of July and made available to newspapers and other periodicals interested in this work an annual list of casualties. Since that time Independence Day celebrations have become not only safer but also, as pointed out in a special bulletin just issued by the Playground and Recreation Association of America (available at 10 cent per copy through writing to this association at 315 Fourth Avenue, New York City), more representative of the real meaning of this holiday.

Thrilling and dangerous performances are now left to those especially trained in exhibition work, the vast majority of people viewing these things as spectacles and not attempting themselves to honor the war of the revolution by indulging in actions as dangerous as any warfare. Today the Fourth of July is celebrated at the shore, in the country, or in the mountains. Fortunately the long drawn out orations, which used to bring boredom to the listeners, are also passing. Tableaux and parades have replaced the forensic efforts of near-statesmen.

In its publication the Recreation Association describes the types of celebrations organized in cities of various sizes through the United States. Information is also provided relative to places from which material for pageants and performances may be secured and books listed that describe drills and provide the music for community singing.

This movement is wisely considered. If children and childlike adults are to be deprived by law of their former methods of celebration, it is desirable that attractive substitutes be furnished for easy gradation from the ridiculous to the sane.

H. Armstrong Roberts

Create an atmosphere of wholesome optimism at the child's meal-time. Always assume that the food will be eaten. Don't nag. Firmness and tact combined with reason will suffice. Even a child with doubtful appetite will respond to diplomacy.

Are You a Dietary Diplomat?

ASKS RUTH H. KUEVER

"I DON'T like my carrots. Do I have to eat them, mother?" And with that the daily battle is on—a battle of words and wits against excuses and pleadings. More battles are fought daily about diet in American homes than may be numbered in all the political conflicts of our country. The number of shell-shocked veterans is far exceeded by the number of mothers with nerves frayed from the bloodless encounter with young America's dietary likes and dislikes.

The problem of what to feed children has grown tremendously in importance during the past generation. Discoveries in the realm of vitamins and their relationship to health have made thoughtful parents revolutionize their menus. Foods with a high vitamin content have leaped to the fore. Witness the lowly liver. As a child I frequently carried home enough for a meal as a gift from the butcher with a T-bone steak. Now housewives have discovered a delicacy in calf's liver at 75 cents a pound, because of the elusive vitamin.

We used to purge our systems of winter ills by an occasional dose of dandelion or mustard greens, supplementing the sassafras tea of our grandmothers. Nowadays "Have you had your spinach?" threatens to become the daily slogan in a million American homes. In my youth tomatoes and cabbage were tabooed as indigestible for the small child. Now babies sip tomato juice at five months and cabbage has become an aristocrat through rich funds of vitamins. We no longer return thanks for our daily bread; it must be whole wheat bread. The gustatory pleasures of a sauerkraut debauch are commendable. Even the juice, sold by the can, is recommended as both sapid and beneficial.

Every One Now Knows What to Eat

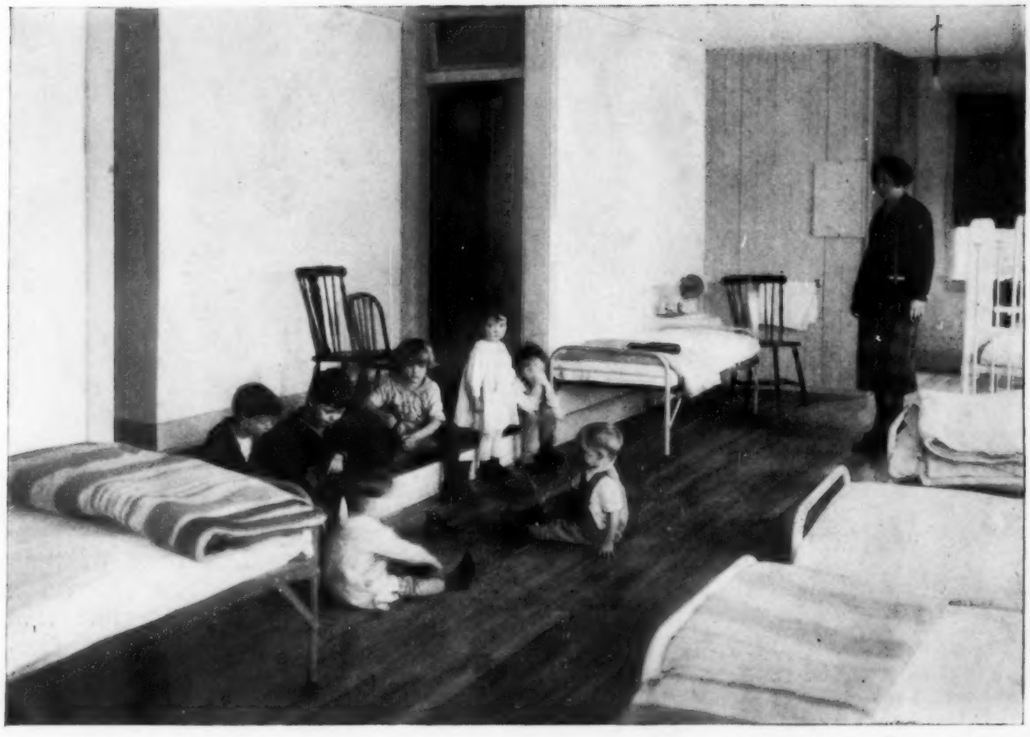
Now we know what to eat. Pamphlets galore have been distributed through health centers, clinics, schools. Literature has been published in every state in the Union disseminating this new doctrine of feeding. But most of them ignore one important factor—how are we to get this food down our children's throats?

When our oldest daughter stretched from colicky babyhood into a thin pale-faced child with faulty dentition, the problem of proper nutrition became paramount. Then vitamins A and B burst forth on the horizon, followed by vitamins C and D. University training had given us a balanced diet, but the theory of vitamins gave us cod liver oil, orange juice and more vegetables. Getting them down became an obsession, the serious effort of determined parents. Carrots, spinach, cabbage and turnips were followed in rapid succession by peas, celery, tomatoes and lettuce. No day passed without several of them appearing, individually or collectively. When the child ate reluctantly we encouraged, when she demurred we insisted, when she rebelled we coerced.

We Try Compulsion on Small Daughter

The much needed calcium in milk we were sure of, because a glass with each meal was a habit she had long ceased to resist. Beef, lamb and liver went down unquestioned, and frequently unchewed. The daily egg became a pill of dissension which no coating seemed to disguise. Vainly we boiled, coddled and poached, but the inhibition was firmly established. Finally we decided to make her eat it anyway. We discussed her lack of cooperation openly both at the table and elsewhere. We scolded, coaxed and cajoled—to no avail.

Gradually we adopted the same policy with other foods. Knowing the fallacy in the old belief that what a child does not like, does him no good, we conscientiously made her eat what we knew would afford the proper nutrition. A happy meal hour was slowly relegated to a battle field with a barrage of vitamins in the foreground. When a younger daughter, who had observed the daily skirmish, began to be "choosey" about her food, advice from an expert



Children at the Preschool Home Laboratory of the Iowa Child Welfare Research Station prepare for a nap. Even the smallest removes his own shoes.

dietitian set me to investigating. After ten years of trial and error, I discovered that my tactics might quite generally be catalogued as "what not to do," and I changed my line of attack.

The Preschool Home Laboratory, a division of the Iowa Child Welfare Research Station, at the University of Iowa, opened my eyes. There twenty children, ranging from 2 to 4, spend each day, while their reactions are observed by skilled workers. Their noonday meal is planned by a nutrition specialist, Dr. Amy Daniels. Her research in the field of biochemistry has made her a national authority. The supervision is under Miss Frances Hungerford and Miss Mate Gittings. The first time I saw the children eating so voraciously, I asked Miss Hungerford if they ever fought their food. She smiled indulgently and said "That word is not in their vocabulary. It never happens."

Then she proceeded to tell me how the children are handled. Dr. Daniels herself told me much more and, because it was illuminating and simple advice, I am repeating it.

Start Child on Small Portions

Never let a child get the idea that there is something on the table that he does not like. When you start to give him a strange vegetable, put a small portion on his plate. Accustom his palate gradually and then increase the amount to his satisfaction. Many dislikes accrue from overabundance. Deal with all foods in the same way. Avoid difficulties in chewing and swallowing.

We found in our family that our insistence that the plate be cleaned led one child to accumulate an unwieldy cud, which she rolled about in her mouth for a long time and insisted she could not swallow. Considerable care must be exercised to avoid this, because it is a common factor in building up inhibitions. A small amount well chewed and promptly swallowed develops the proper food habits.

Making Foods More Appealing

The child may form a dislike for certain foods because they are difficult to chew. Perhaps your carrots will have to be ground. Maybe the spinach is gritty or, worse yet, slippery. We all develop dislikes that we keep to ourselves, but an ingenious parent can overcome many idiosyncrasies by dressing the offender in a new garb. Cut the spinach very fine, and squeeze a little lemon on it. Or top it with a spoonful of chilli sauce and the child will forget the grit. Vary it with a white sauce or a grated egg or cheese. If he is allowed to serve himself occasionally, he simply cannot resist it.

Many children refuse meat because of the difficulty of chewing it. It is a good plan to grind the meat for children to avoid that.

The menu for the children in the Home Laboratory contains certain items every day, and among them vegetable soup. It is quite the easiest way to insure certain vitamins for health. By running the soup through a coarse sieve, it is easily eaten and palatable for every member of the family. Lettuce sandwiches are also served daily. Who can resist the lure of a sandwich? The surprise in the middle intrigues adult and child alike. A sandwich affords the easiest way to feed lettuce to small children and

assures adequate mastication. Every noon meal for these children ends with fruit.

Be sure the fruit you serve children is prepared so they can handle it. Pineapple, oranges, baked apples, apricots or fruit cup should all be finely cut. How many times have we mothers scolded because a child balked at the sight of a whole baked apple! Prune whip with custard sauce or apple tapioca affords a pleasing variety.

Let Child Pour His Own Milk

Let the small child learn to pour his own milk. It disappears more readily and teaches him to correlate his muscles too. At the Home Laboratory small cups are used for milk mugs; these each child may fill three times during the meal —with soup, with dinner, with dessert—never more. There is a flattering sense of importance in pouring out one's own milk from a pitcher. At the same time it eliminates filling up on milk alone. Every drop of soup is gone before the child toddles with his dish to the tray and returns with his dinner course. No child gets his dessert until his dinner plate is entirely cleaned.

Of course there is an incentive in any group performance, but there is never any urging to eat, no objections to the food, no discussions or whys. The children are taught early that sleep, fresh air and nourishing food are necessary, and that the food served them is for their best interests. If any one fails to eat it, he is separated from the group and made to eat by himself, for he must not interfere with the morale. If he fails to eat then, he is tucked in for a nap without any food at all for a few times.

We tried that ineffectually in our home once. The child was really relieved not to have to eat. We had to create an appetite by increasing her hours of sleep, exercise and by a tonic rich in vitamins. The results were most gratifying.

The psychology of eating is the most important factor. Create an atmosphere of wholesome optimism. Always assume that the food will be eaten. Don't nag. Here we made our fatal blunder. We threshed out our problem at the table. The child went there expecting to be urged and directed. She waited for that, built up inhibitions which we aggravated instead of ignoring. The problem must be handled, but not at the table.

Many Mothers Prepare for War

Will the youngsters in the Home Laboratory become "picky" after they leave it? I think not. They have established the proper habits and developed the right tastes. The reasons why are established early and it is taken for granted that they will respond. But many mothers are daily preparing for war. A young mother sat near me recently, urging her small son. "I just can't make Bobby drink his milk," she declared. "He doesn't like milk or vegetables." And Bobby complacently filled up on white rolls and cranberry mold as she detailed his dislikes.

Last week a small girl whom we invited for dinner inquired our bill of fare. "Oh, I don't like chicken pie," she informed me. "And mother can't make me eat carrots or turnips either. I'm too finicky."

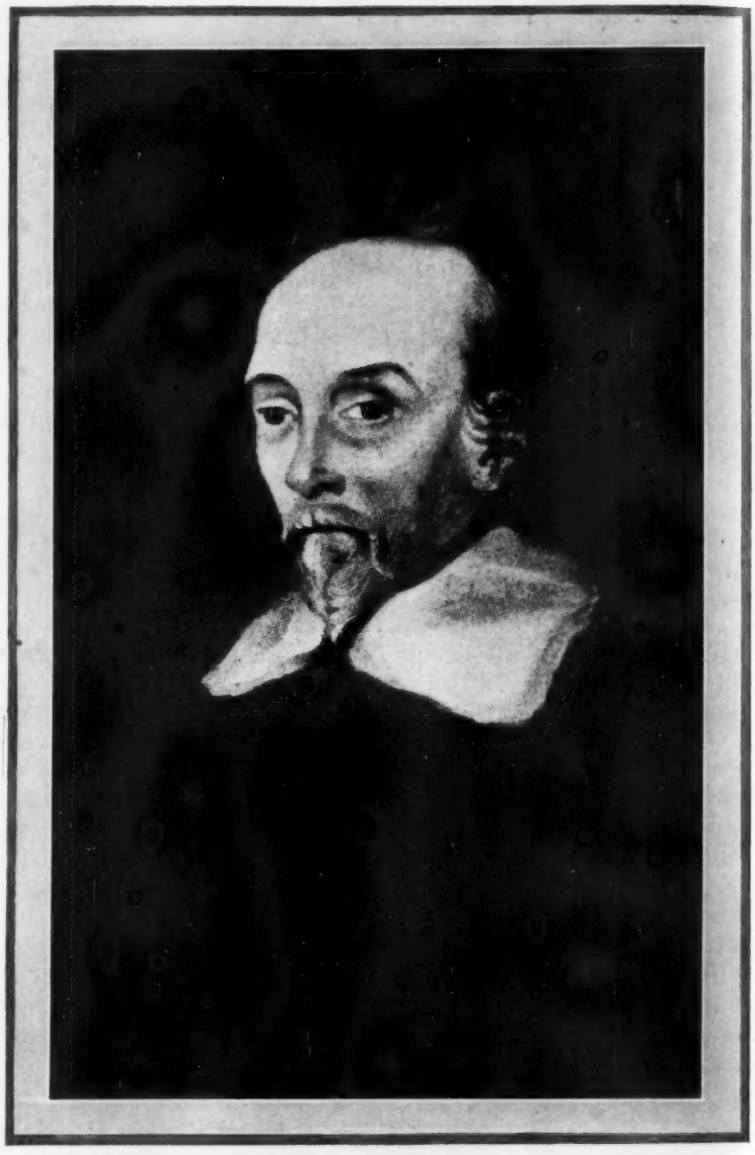
It sounded like a challenge, a challenge for parents to arbitrate for vitamins.

Good appetite depends on plenty of sleep and outdoor exercise. Children at the Preschool Home Laboratory, University of Iowa, take a rest in bed every afternoon.

1628 — 1928

Tercentenary of Discovery of the Circulation of the Blood

Richard M. Hewitt



Three hundred years ago William Harvey published his views concerning the circulation of the blood.

WIDELY over the world, this year, groups of physicians are celebrating the tercentenary of the publication by William Harvey of his views concerning the circulation of the blood.

We take for granted now that the blood circulates and we have all sorts of scientific instruments for the demonstration of a number of facts about the body. Even now, however, if our fine instruments should remain to us, but by some disaster knowledge of the heart and arteries were wiped out, it would be a considerable task to show that the blood is in circulation. We could hear and feel the heart beat, and when we cut an artery, the blood would issue in spurts timed with the beat of the heart. But these facts would not prove that the blood circulates, that it is propelled from the heart and returns to it. For all we could tell, these phenomena might be due merely to a flow and back flow, as many of the men of Harvey's day believed.

Harvey, however, was a true discoverer. As practically all great discoverers have done, he built on the foundations laid by his predecessors. At least one of these predecessors he found in Italy when, as a young man, he went to study at Padua.

That he should go to Italy was natural. At the time of his birth in 1578, England was in her first great day. Her bluff mariners led by Lord Howard of Effingham had defeated the Armada, "the myrmidons of Spain," and had established England as a world power. English sailors were masters of the sea. The wonders of the New World were being explored and the wonders of the Old World were being rediscovered. The repressive influence of the middle ages was past. Englishmen were outward looking and receptive; travel was popular, and thought, rather than being stifled by edict, was encouraged by the example of the queen. The English Renaissance was on and Harvey was of it.

So he went to Italy and since educated men of the day of all Western countries could communicate in Latin, he presumably had no difficulty in absorbing the teachings of his master, Hieronymus Fabricius ab Aquapendente. Four years before Harvey was born this great Italian had described the valves in the veins and had pointed out that the flow of blood in the veins was toward the heart. In the four years that Harvey was in Italy, the chances are that he was influenced by his professor.

Harvey returned to England in 1603 or 1604 and immediately became an aspirant to membership in the College of Physicians in London. His progress was rapid. He was admitted to fellowship in 1607 and in 1616, the year of Shakespeare's death, he was made lecturer on anatomy and surgery. At the outset of his lectureship, he began to teach his theory of the circulation.

Fortunately for the world, physicians are slow to accept new material and they insist on proof, confirmation and more proof before they will begin to apply new and apparently wild ideas in treatment of their patients. Harvey, therefore, was opposed. But he seems to have been a very vital man, mentally accurate and physically courageous. He is described by Garrison as "of short stature, with bright black eyes and raven hair, 'complexion like the wainscot,' quick, alert, choleric, often fingering the handle of his dagger."

EXERCITATIO,
ANATOMICA DE
MOTV CORDIS ET SAN-
GVINIS IN ANIMALI-
BVS,
GVILIELMI HARVEI ANGLI,
Medici Regii, & Professoris Anatomiæ in Col-
legio Medicorum Londinensi.
FRANCOFVRTI,
Sumptibus GVILIELMI FITZERI.
ANNO M. DC. XXVIII.

Title page of the first edition of the "De Motu."

By nature Harvey was an experimenter, not a practitioner, but in the life of the times he took an active part. His sympathy was with the cavaliers against the Roundheads under Cromwell. He was a Kent man and one can imagine him with "Kentish Sir Byng" one of the great-hearted gentlemen, singing this song:

God for King Charles! Pym and such carles
To the Devil that prompts 'em their treasonous parles!
Cavaliers up! Lips from the cup,
Hands from the pasty, nor bite take nor sup
Till you're—
Marching along, fifty-score strong,
Great-hearted gentlemen, singing this song.

As a matter of fact, Harvey served at the battle of Edgehill, for which service the king appointed him warden of Merton College, Oxford. He was already physician to his majesty.

This man, then, was not to be suppressed easily. He was worthy of any antagonist and he took them on. From 1616 on he continued to include his views on the circulation in his lectures. At last, in 1628 he published his treatise "Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus"—usually referred to as the "De Motu" or "De Motu Cordis." For some reason, perhaps because his ideas were not in general favor in England; perhaps because better books were made in Germany than in England, the volume was published from Frankfort. His dedication "to his very dear friend, Doctor Argent, the excellent and accomplished president of the Royal College of Physicians, and to other learned physicians, his most esteemed colleagues" is a fine example of that cultured prose which often, even today, issues from the pen of one trained in the classics. As published by Camac it contains the following passages:

"And as this book alone declares the blood to course and revolve by a new route, very different from the ancient and beaten pathway trodden for so many ages, and illustrated by such a host of learned and distinguished men, I was greatly afraid lest I might be charged

with presumption did I lay my work before the public at home, or send it beyond seas for impression, unless I had first proposed the subject to you, had confirmed its conclusions by ocular demonstrations in your presence, had replied to your doubts and objections, and secured the assent and support of our distinguished President.

"True philosophers, who are only eager for truth and knowledge, never regard themselves as already so thoroughly informed, but that they welcome further information from whomsoever and from wheresoever it may come; nor are they so narrow-minded as to imagine any of the arts or sciences transmitted to us by the ancients, in such a state of forwardness or completeness, that nothing is left for the ingenuity and industry of others.

"Neither do they swear such fealty to their mistress Antiquity, that they openly, and in sight of all, deny and desert their friend Truth. But even as they see that the credulous and vain are disposed at the first blush to accept and believe everything that is proposed to them, so do they observe that the dull and unintellectual are indisposed to see what lies before their eyes, and even deny the light of the noonday sun."

In Chapter 1 of the treatise, the author gave his motives for writing. Originally of course the following was in Latin:

"When I first gave my mind to vivisections, as a means of discovering the motions and uses of the heart, and sought to discover these from actual inspection, and not from the writings of others, I found the task so truly arduous, so full of difficulties, that I was almost tempted to think, with Fracastorius, that the motion of the heart was only to be comprehended by God.

"At length, by using greater and daily diligence and investigation, making frequent inspection of many and various animals, and collating numerous observations, I thought that I had attained to the truth, that I should extricate myself and escape from this labyrinth, and that I had discovered what I so much desired, both the motion and the use of the heart and arteries. From that time I have not hesitated to expose my views upon these subjects, not only in private to my friends, but also in public, in my anatomical lectures, after the manner of the Academy of old.

"These views, as usual, pleased some more, others less; some chid and calumniated me, and laid it to me as a crime that I had dared to depart from the precepts and opinions of all anatomists; others desired further explanations of the novelties, which they said were both worthy of consideration, and might perchance be found of signal use. At length, yielding to the requests of my friends, that all might be made participators in my labors, and partly moved by the envy of others, who, receiving my views with uncandid minds and understanding them indifferently, have essayed to traduce me publicly, I have moved to commit these things to the press, in order that all may be enabled to form an opinion both of me and my labours."

Harvey's argument would interest only physicians and other biologists. But this clear thinking physician-investigator, this choleric cavalier, exerted, says Garrison, a greater influence on modern medicine than any one except Vesalius. There are other great names in the history of the circulation of the blood. National jealousies to some extent have entered into the discussion as to who, actually, was its discoverer. Harvey himself would have been least likely to claim that the idea originated with him. Nevertheless he knew the history and literature concerned, surveyed existing theories, separated error from truth, and produced his own experimental proofs. He applied methods of biologic investigation that have withstood the test of time.

Others before Christopher Columbus had theorized concerning lands that might lie to the west; Columbus demonstrated them. In the field of biology Harvey holds a similar position, and it is this man to whose memory, this year, physicians pay their respects.

What Causes MENTAL DISEASE?

By H. C. Solomon

MOST people are in the dark as to what is meant by mental disease, and it is not entirely easy to define it any more than it is easy to define disease in general or to delimit the territory of health and illness. It may suffice to consider the field of mental disease as comprising any difficulties in adjustments to life that are due to psychologic factors or dependent on wrong functioning of the mind.

The field of mental disease includes, therefore, not only the major psychoses or difficulties of the mind, which entirely incapacitate an individual and often lead to the necessity of hospital care, but also minor disorders such as morbid fears, which hinder a person from carrying out the ordinary activities of life; for instance, such a fear as would prevent one from standing up and addressing an audience. This would represent a definite handicap to life's opportunities and duties, depending entirely on a state of mind.

Severe and Minor Disturbances

In this broad definition of the field of mental disorder, one will have to consider severe and mild mental difficulties. In the major psychoses will be found disorders known as general paralysis of the insane, alcoholic mental diseases, arteriosclerotic and various brain diseases, the affective psychoses (manic depressive insanity, and the schizophrenic psychoses (dementia praecox). In the group of minor mental disturbances may be placed the psychoneurotic manifestations, often called hysteria, neurasthenia, psychasthenia, obsessional and fear states. At times the disorders of the latter type, which ordinarily are mild manifestations, may become more disabling and severe than those that generally have a worse outlook.

For many years the study of mental disturbances was in the field of classification of symptoms. Then came a period of search for the underlying disease condition on a structural basis and of course to a certain extent simultaneous search for the cause.

Out of these investigations came a knowledge of disorders in the brain in certain groups of cases. These may be placed together under the heading of the organic psychoses under which can be grouped all cases of mental disease having a recognized physical basis. There still remain a great many types of mental disorder in which has been discovered no disease of the brain or of the body that can rightly be considered as playing an important part in the production of symptoms.

Organic Psychoses

The organic group of mental diseases represents somewhat less than half of the cases that reach hospitals for mental diseases. The majority of these cases fall into three main subdivisions; general paralysis, alcoholic psychoses and psychoses associated with old age. The first two of these subdivisions are particularly important because in the present state of our knowledge they contain cases that are theoretically preventable.

In the group of general paralysis fall in the neighborhood of 10 per cent of all patients who develop mental disease of a variety leading to hospitalization in institutions for mental disease; and if the male sex alone is considered, this group includes from 20 to 25 per cent of all cases of mental disease. General paralysis is a disease that occurs chiefly in persons between the ages of 35 and 50, and in this age period a large percentage of cases of mental disorder are victims of this disease.

General paralysis is of special interest to the psychiatrist because it is the first disease of the mind with organic causes to have been recognized as a separate entity. This disease was first recognized and described a little more than 100 years ago by a young French psychiatrist named Bayle. Since that time knowledge concerning the disease has slowly but surely been accumulating. In the 1870's several astute observers called attention to the relationship between this disorder and syphilis. During the remainder of the last century and early part of the twentieth century, various studies pointed more and more surely to syphilis as the causative agent, and now with our present-day knowledge we are able to say that syphilis is the cause of this frequent and terrible disorder.

Finding the Cause of General Paralysis

The story of the discovery of the cause of general paralysis is extremely enlightening from the standpoint of the length of time and amount of work necessary to establish the cause of the disease, which, after the cause has once been firmly established, seems so utterly simple.

The first significant mention of syphilis was made in the '50's by one of the greatest pathologists of all times, Virchow, on the basis of certain microscopic changes occurring in the brain. Then, in the '70's and '80's, Krafft-Ebing and Erb in Germany and Fournier in France laid great stress on the importance of syphilis. Their work consisted largely of getting careful histories of patients who developed general paralysis and finding that a large percentage of these patients gave the history of having suffered from syphilis earlier in life. Painstaking investigations over a period of years representing innumerable hours of careful questioning convinced them of this etiologic association. However, it was a slow process to convince the medical world in general of this relationship. The literature of the latter part of the nineteenth and earlier part of the twentieth centuries is replete with discussions, many of them acrimonious.

In the early part of this century, examination of the cerebrospinal fluid, which was then a new procedure, began to give more and definite evidence. In 1906 the Wassermann reaction for diagnosis of syphilis was established and this showed that nearly all cases of general paralysis gave a positive blood reaction for syphilis. In 1908 this reaction was applied to the cerebrospinal fluid and with this test it was found that practically 100 per cent of the patients gave a positive reaction for syphilis in this fluid. This, of course, was strong evidence but was not the final link, because the organism of syphilis could not be demonstrated in the brain of the patients with the disease.

Proof that Syphilis Is the Cause

The spirochete, the causative agent of syphilis, was first recognized by Schaudinn in 1905 but investigations during the next eight years failed to reveal the organism in the brains of patients with general paralysis, and it was not until 1913 that Noguchi and Moore first showed the presence of the spirochete in the brains of individuals who had died from general paralysis. Since that time confirmation of this finding has established without peradventure of a doubt that syphilis is the cause, and it is now believed that without syphilis there can be no general paralysis. It should be borne in mind that our present-day knowledge includes postmortem examinations, which make possible a check on the correctness of diagnosis. At the present time physicians are able, as a result of clinical knowledge, including a variety of laboratory tests, to diagnose cases of general paralysis with a high degree of accuracy.

The importance of the knowledge that syphilis is the cause of general paralysis is twofold. First, it gives us the possibility of preventing general paralysis, and, secondly, it offers the possibilities of treatment of this mental disorder after it has developed.

Theoretically, the prevention of general paralysis is simple. If one can prevent syphilis, then necessarily general paralysis will also be prevented. Therefore, all effort to prevent venereal disease is a strong effort in the direction of mental hygiene or the prevention of mental disorder.

The quiet atmosphere of a sanatorium.

Further, if syphilis is acquired, early and proper treatment may be expected to prevent the later development of general paralysis. Practically, the situation is more difficult because we have not as yet been able to control the spread of syphilis, nor have we succeeded in inducing infected persons to continue the proper type of treatment.

The treatment of general paralysis is now possible because we know that it is an active syphilitic disease of the brain, and the problem is thereby greatly simplified. However, it is still a long way from solution. In the last ten years a great deal of progress has been made in the treatment of this condition; it is now possible to help some cases.

When Alcohol Is Responsible

Alcohol is responsible for about the same number of cases of mental disease as is syphilis. There are several types of alcoholic mental disease. Possibly the best known is delirium tremens, with which every one is familiar at least from reading of it. The patient with this acute but serious disorder rarely gets to a hospital for mental diseases and hence is not included in the percentage figures mentioned. The chronic alcoholic dement likewise is common and rarely reaches a hospital. Patients with alcoholic hallucinosis suffer from vivid and unpleasant hallucinations of hearing and sight. There are also several other varieties.

Not only does alcohol cause mental disease in persons who without its use would probably remain well, but it reenforces and makes worse many mild mental cases.

From the theoretical standpoint, about 10 per cent of all cases of severe mental disorder are preventable by the simple procedure of the avoidance of excessive intake of alcohol. Let us again emphasize "theoretically" possible, because practically we have not as yet succeeded. For a number of years prior to prohibition there had been a slow but steady decline in the number of cases of mental disease caused by alcohol admitted to the institutions for the care of mental disorders. The year following the introduction of national prohibition these cases dropped to an insignificant number. Unfortunately, however, this state of affairs was not a lasting one, and by the end of three or four years the incidence of alcoholic mental diseases as measured by the admission of patients to institutions for mental disorders located in the Atlantic coast states was approximately that of the preprohibition era. Hence, from the standpoint of mental hygiene, prohibition has not as yet solved the problem.

The mental diseases of the old age period, for practical purposes, may be considered in two groups: those due to arteriosclerosis and those due to simple senile degenerative changes. In dealing with the problem of arteriosclerotic mental disease, we are dealing merely with one manifestation of arteriosclerosis, a manifestation in which the blood vessels of the brain are chiefly affected. The problems, therefore, are the same problems as are met with by the internist in the prevention and treatment of arteriosclerosis.

The Psychoses of Old Age

In the group of true senile psychoses dependent on senile atrophy or degeneration of the brain, the problem theoretically is more complex and not so well understood. We have learned a good deal about the pathologic picture of senile brain changes, but know practically nothing about the causes thereof. Age brings on changes in the body, but in the brain rather striking and peculiar changes occur that apparently are unrelated to hardening of the arteries. In certain persons for no reason of which we are at present aware, these changes occur earlier than in others or are more severe. As we do not know the cause, we are completely at a loss as to prevention or treatment.

The remaining cases of mental disorders associated with organic disease of the brain or of the body, with the production of poisons affecting the brain, may be divided into a great many groups. Among the causes may be mentioned the various infectious diseases, marked exhaustion, toxemias resulting from diabetes and kidney disease, poisons such as lead, arsenic and drugs, brain tumors, and certain degenerative diseases of the nervous system. In most of these it is easy to understand the cause in that it is of a recognizable type of physical disease.

(Part II on "Functional Psychoses" will be published in the August issue.)

Testimony

He would read some of the new testimonials tonight instead of going straight to bed.

HENRY FEHRLING walked heavily up the path that led to his daughter's house. It was hard to distinguish the labored throaty sounds of his breathing from the scraping noise made by his overshoe clad feet, as he dragged them along the ground. When at last he reached the bit of plank walk that led up to the door of the Wiese's weatherbeaten house, the tapping of his huge hickory cane brought Emma Wiese, his daughter, to the door. As she let her father in, the February air struck her flushed, sweaty face and whitened the breath that came with her high-pitched greeting.

"My, pa," she cried as she began to take the packages he held on his arm, "I thought you'd never get here. It's almost time for Fred to be home for supper. What kept you?"

Her father was struggling with his bulky overshoes, and his great, gray mustache shed tiny icicles as he bent near the air-tight heating stove. For a moment he made no answer. At last with a crackling cough, which shook his puffy, red-veined jowls:

"Oh, I must play a game of checkers with Newman. He wanted I should."

Impatiently Emma turned to the kitchen door. The sound of crinkling paper and snapping of twine followed as she opened the packages. Soon a wreath of smoke curled above a hissing frying-pan. Emma dropped a great piece of flour-smeared steak with a smack into the skillet, turning her flushed face away to protect it from the splashing grease. Just then the door opened and Fred Wiese, her husband, entered, swathed in a great sheepskin-lined duck jacket, a dinner pail in his hand. He glanced at the stove and sniffed the odor of coffee. Without a word he moved to the sink and, throwing his coat and hat on a chair, began washing his huge hands in a basin of water that stood ready for him.

While he was wiping them on the roller towel, his father-in-law came into the kitchen.

"Hello, dad!" grunted Fred. "How are you tonight?"

"Oh, nothin' extra," replied Henry in his throaty tone. Soon he, too, was sloshing about in the wash basin blowing like a porpoise.

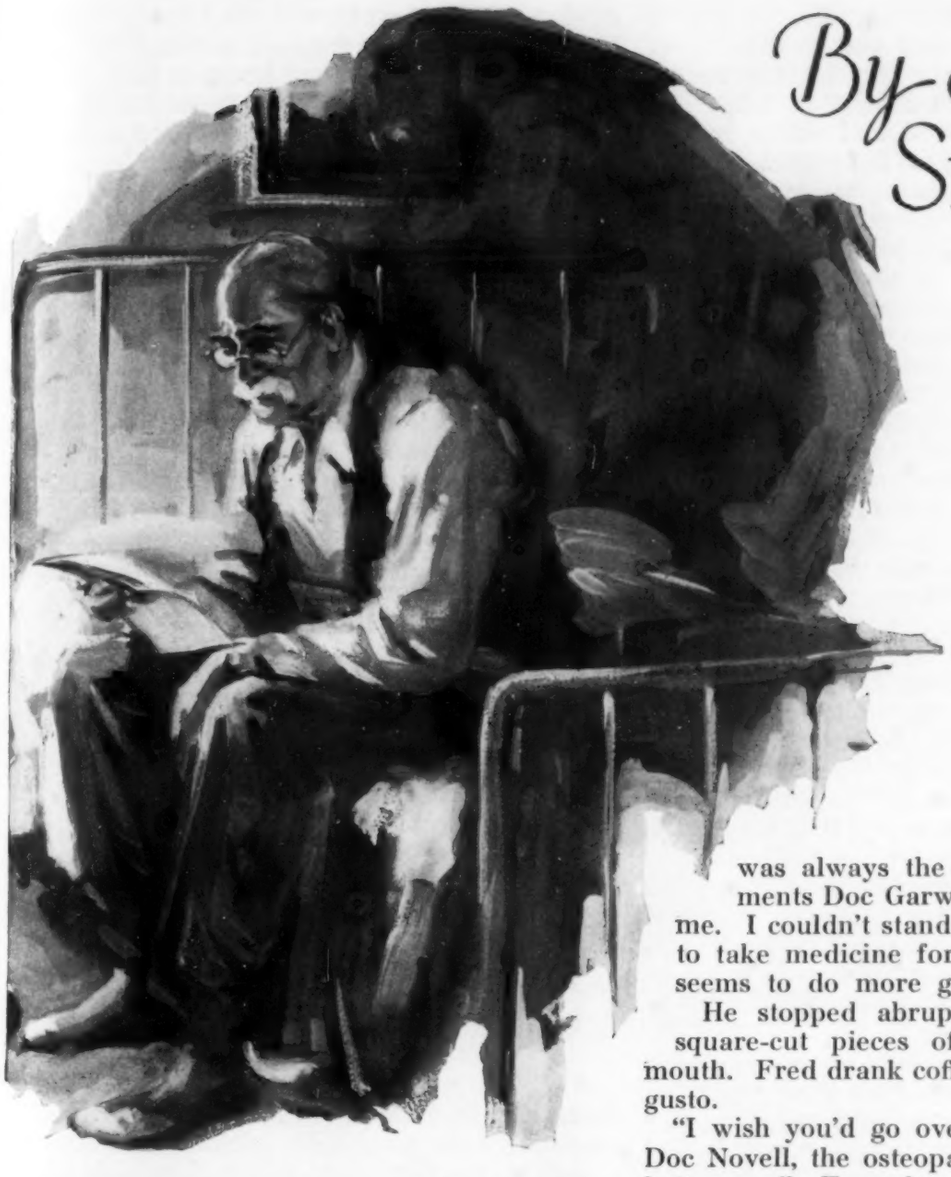
The three people gathered about the table at a summons from Emma. Suddenly, and apparently as an afterthought, the older man went to his shabby overcoat, which hung near the stove, and drew a package from one of the pockets. Slowly he unwrapped it and produced a bottle of medicine from a brown pasteboard carton.

"Give me a spoon, Emma," he said, as he pulled the stopper out with a corkscrew which he took from the windowsill.

His daughter obeyed, an anxious look on her face. Henry poured a spoonful of the brown liquid and swallowed it with a wry face. His son-in-law, who had already started eating, watched with a cynical half-smile.

"What's the matter?" he asked. "Have you quit the chiropractor and gone back to patent medicine again?"

By Jay G. Sigmund



The older man sat down and drank noisily from a glass of water before replying.

"It's a new heart medicine Newman just got in," he answered at last. "It's guaranteed. I can't see that Doc Allen, the chiropractor, is helpin' me much. I thought at first he did, but for the last week or so I've been chokin' up awful at night and my heart pounds like a sledge hammer. Newman says this ought to help me. He says he hasn't got a better thing in his store. If it doesn't help, he'll give me back my money, he says. It's $2 a bottle."

"That's what he told you about that other stuff. He told you the same thing about the electric belt, too, and about the tablets he gave you. How do you suppose he'd sell his junk if he didn't tell that same thing to every one?"

"Well, he did give me credit on my bill for $6 on that electric belt. It did do me some good but not very much. I can't stand the chiropractic treatments, though. I think they helped me but I can't keep takin' them regular. That was always the trouble with the treatments Doc Garwin over at Torville gave me. I couldn't stand his massagin'. I've got to take medicine for my heart, I guess. It seems to do more good than anything."

He stopped abruptly and began stuffing square-cut pieces of fried steak into his mouth. Fred drank coffee from his saucer with gusto.

"I wish you'd go over to Waketon and see Doc Novell, the osteopath, when the roads get better, pa." Emma's voice showed a trace of anxiety.

The three people ate in silence. The sweat stood out on Henry Fehrling's forehead and his pale blue, watery eyes grew dull as he became filled with the food. He finished the meal at last and shoved his chair away from the table. His son-in-law picked his teeth and reached for a newspaper. Emma started clearing the dishes, and soon the fumes from Henry's pipe—which was almost as wheezy of breath as its owner—mingled with the greasy odors of the warm dining room.

Tonight Henry did not sit by the kerosene lamp, which occupied the center table of the Wiese sitting room, reading from his German newspaper or turning through the pages of a mail order catalogue, as was his habit. Seldom, since he had lived with his daughter—it was nearly five years now—had he failed to fall asleep in his big rocking chair, which always stood ready for him after the evening meal.

When tonight he started for the stairway, Emma had glanced after him, but she said nothing. She saw him stop and take the bottle of medicine in its brown carton from the table but resumed her sewing. Fred had fallen into a doze and she had picked up his paper that lay beside him. The clock struck seven as Henry climbed the stair. Eight was his usual bedtime.

But tonight he sat by his bed for a long time poring over the circular that was wrapped around his bottle of medicine. Laboriously he read the fine print and he scanned the pictures with eyes that watered and squinted from the strain of trying to see by the dim little lamp that flickered on the pine stand. The circular was covered on one side with testimonial letters from sufferers who gratefully poured out their praise of "Dr. Johnson's Heart Remedy." Many and varied were the walks of life from which these afflicted ones came. One was a policeman, the testimonial said, and earnestly his letter acclaimed the merits of the wonderful heart remedy. Another was a railroad man in Tennessee. His condition, he declared, was most pitiable until he chanced to learn of the marvelous cures that Dr. Johnson's medicine had wrought on mankind. The testimonials seemed to be from all over the country, but Henry noticed with some regret that none were from folk he knew.

If any of them lived around here I'd go and talk with them, mused Henry. He felt a strange kinship with the people whose faces he scrutinized so carefully and yet there was a bit of envy in his feeling toward them. They were in a slightly different world.

Emma and Fred both came up the creaking stairs to their bedroom before Henry put the circular aside. After taking his bedtime dose of the medicine he threw off his outer clothing and crawled under the patchwork quilts, but it was a long time before drowsiness came to him as he lay there feeling the pulse of his left wrist with his calloused fingertips.

EMMA noticed about two weeks later that her father's medicine was nearly exhausted.

"Is your medicine helping you, pa?" she asked.

"I think so. Yes, yes, I think so," answered her father. His tone showed that confidence in the treatment was not lacking.

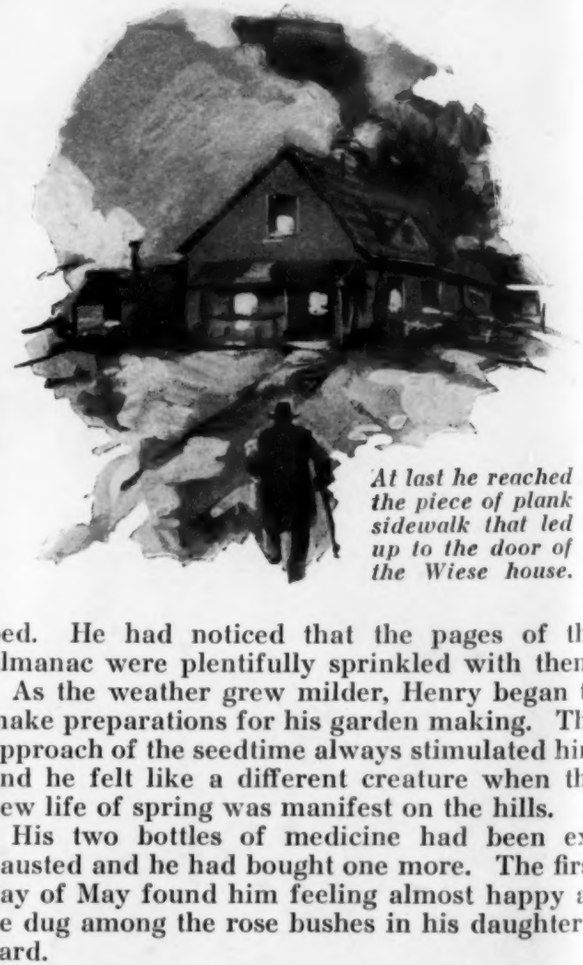
"You'll get some more then? You'll keep right on?" queried Emma with interest not altogether untinged with worry.

"Yes, I must have some more. I must go down to Newman's the first night it ain't too cold," was his reply.

At last the weather moderated and the long expected February thaw came. The snow on the hillside in front of the Wiese house became a ragged, dirty white quilt and little rivulets of clay-yellowed water wriggled down the slope like muddy snakes frightened from the vegetable garden. Henry took his cane from behind the stove one afternoon and started for the post-office. As he left the house he turned to Emma.

"I'll go to Newman's before I come back. I'm out of medicine."

That afternoon he bought two bottles instead of one. He thought as he plodded home that by the time these two bottles were used up his cure would be complete. This thought brought him a thrill of satisfaction and he felt in his pocket to see if the new almanac that Newman had given him still was there. He would read some new testimonials tonight before going to bed. He had noticed that the pages of the almanac were plentifully sprinkled with them.



At last he reached the piece of plank sidewalk that led up to the door of the Wiese house.

As the weather grew milder, Henry began to make preparations for his garden making. The approach of the seedtime always stimulated him and he felt like a different creature when the new life of spring was manifest on the hills.

His two bottles of medicine had been exhausted and he had bought one more. The first day of May found him feeling almost happy as he dug among the rose bushes in his daughter's yard.

In the afternoon he went as usual to the post office. Another circular had come from Newman's drug store to inform him of the merits of the medicine he had been taking daily. He felt a strange thrill as he tore open the envelop. For days an idea had been growing in his brain. The lure of the testimonials could no longer be withstood. He was determined to knock at the door of this happy fraternity for admission. He had resolved to write a testimonial for Dr. Johnson's Heart Remedy and send it in to the factory that made the medicine—"laboratory," they called it on the bottle carton.

The writing of the letter presented difficulties. Henry's education was meager and he did not care to take any one into his confidence. That evening he pottered about his garden until dusk and then went up the creaking stairway to his bedroom with the new circular in his pocket. His bottle of medicine stood on his pine dressing table. Before setting himself to the task of composing his letter, he took his usual bedtime dose of the brown fluid.

Long and carefully he studied his new booklet. He had put a new writing tablet and freshly sharpened pencil in his table drawer that morning. His plans had been slowly but thoroughly shaped. Now that the time had come to begin actual work on the testimonial, he felt nervous and his heart began beating furiously. This worried him. What if after all the medicine had not been doing him the good he thought it had? But no, he was sure he was much better. Possibly he was not completely cured, but a full cure was doubtless only the matter of a few more bottles of medicine.

Emma began to hurry her preparations for the evening meal.

The desire to be included within the circle of these happy folk with whom he had held such sweet communion through the printed page all winter must not be postponed longer; then, too, perhaps by not openly acclaiming the wonders which the medicine had wrought with him, he might be keeping some other sufferer from being healed. This last thought was most comforting. He took up his pencil and bent over the tablet.

Henry had written few letters in his adult life; some to the mail order house from which he ordered goods, one to his daughter when she had been away on a visit a few years before, one or two to a sister in Germany—these were about all. Letters had always seemed to him things that should concern such people as bankers, school teachers and storekeepers.

At last he started. Slowly and heavily he labored on the letter. Again and again he destroyed it, only to start again. The spelling of the words perplexed him. The salutation of the letter was a problem. Should he start it as he had started his letters to the mail order house or write as though he was writing to some great figure like Dr. Johnson must be?

He heard the clock strike nine, then ten and at last, just as he finished, eleven. He wondered if Emma had suspected that he was still up. Very quietly he moved about as he undressed. The letter was sealed and addressed—even stamped, for he had provided a supply of stamps that afternoon. In the envelop, carefully wrapped in tissue paper, was a tiny kodak picture that Emma had taken of him years before. It was the only photograph he had ever had. He hoped that Emma would not miss the picture, but she rarely looked in the bureau drawer where she kept her small collection of photographs, so he felt safe on that score. The task of composing the letter left him restless and he tossed about for a long time before sleep came to relieve the taut feeling of his nerves.

The next morning as soon as he ate his breakfast, Henry went to the postoffice and mailed his letter to the headquarters of the firm that made his heart medicine. The rest of the day he spent in his garden. The days of spring passed quickly.

Henry was faithful in his calls at the postoffice, but outside of his German paper and an occasional almanac from Newman the druggist there was no other mail. His supply of medicine had again been exhausted and replenished. The mild spring days seemed to put new iron into his soul and when he sat on the porch in the evening, listening to the croaking of the frogs from a pond in a nearby pasture, he felt a new strength well up within him. Often he would grasp his left wrist as he sat in the dusk and try to count the steady beats in his pulse. Any qualms of conscience he at one time felt for testifying to the virtues of the patent heart medicine had vanished with the approach of spring.

But, with all this, something was lacking. While the mail had brought him circulars from time to time that acquainted him with many who had been snatched from the very jaws of death by the curative properties of Dr. Johnson's marvelous medicine, he felt somewhat barred from the intimate fellowship of his distant friends, because his testimonial and picture had not yet been added to the group.

He watched all the papers that came within his range. Every time he saw a picture of a man in the advertising section of a magazine or farm paper, he felt a thrill until he saw that the testimonial was not his own. Never had he scanned the pages of papers so carefully. Even Emma noticed this, but did not comment upon it. He had hoped that the medicine company might write to him, but no letter came. Also, he was mildly fearful that Emma might have occasion to look about among her photographs some day. He felt that should this come

about, he could maintain his silent mien, but he felt he would rather not be subjected to any questionings from his daughter.

Finally, one Saturday afternoon, he went to the postoffice and got the weekly issue of the home paper for which his son-in-law subscribed. He tucked the sheet under his arm and walked home as usual. Upon arriving there he found a neighbor sitting on the porch chatting with Emma. At once he went up to his room.

The news in the Mohrburg Bulletin interested him only casually, but he sat down beside his bed and began to look over the pages. The local news was scarce this week. The season for public sales being over, it was hard for the editor to fill the front page. He turned the sheet over to look at the back page and something met his eye that caused his heart so to quicken its beats that a pain racked his breast. There in front of him was his own picture twice as large as the kodak print that he had sent away! Not only that; above it in large print was a caption: MIDDLE WESTERN FARMER IS CURED OF HEART TROUBLE!

Then followed his letter. Many of the words were spelled differently from the way Henry had spelled them and it seemed to him a certain power had been instilled into his sentences, as well as a fair sized paragraph added, but in substance it was his own letter—an earnest outpouring of a grateful soul—and it had his name signed in great capitals. Better than all it was in the advertising section of his home paper where all his townsmen could see!

He wondered how many other papers contained the testimonial. Probably the same letter with his picture had been spread broadcast over the country. It thrilled him. What if it even was sent to papers in foreign countries. He had heard that some firms advertised in Germany. What a fine thing it would be if his sister should see his testimonial in a paper from Munich or Stuttgart.

As he sat fondling the paper, he felt some difficulty in breathing and the room seemed stuffy and close. He opened the window and felt the cool air fan his forehead. The pain in his breast came again. He looked at his watch. It was only half past six, fully a half hour until supper would be ready. He took off his heavy shoes and lay down on the bed with the paper in his hand. The room was still and he was tired. He was strangely happy, too, but his position was uncomfortable. He tried to shift his posture but the pain in his chest came again. Oh, well, he would try to nap for a minute, anyway, and Emma would call him in time for his supper.

EMMA'S visitor left at last and she went into the house and began to hurry her preparations for the meal. The fire was out and she kindled it with a basket of corn cobs and a liberal supply of kerosene. She broke eggs in a hissing skillet and filled the granite coffee pot with water. When her husband came up the walk whistling, the supper was almost ready. As Fred sloshed about in the sink, she talked with him. Soon the supper was steaming on the table.

"Pa!" she called from the foot of the stair.

The two people seated themselves at the table. For a few minutes they ate silently and then exchanged glances. Emma went to the stairway.

"Pa!" she called again; "come to supper, pa!"

There was no answer and Emma hastened up the stairs to her father's room. The door was ajar. She rushed in. He lay on the bed with a newspaper across his breast. There was a smile on his face but his sagging cheeks were ashen. Emma put her hands to his forehead, which was cold with that chill that comes only to the dead.

TRAINING "Black Mammies"

"And Brer Rabbit said to the Tarbaby"—a story telling group.

By H. Reid Hunter

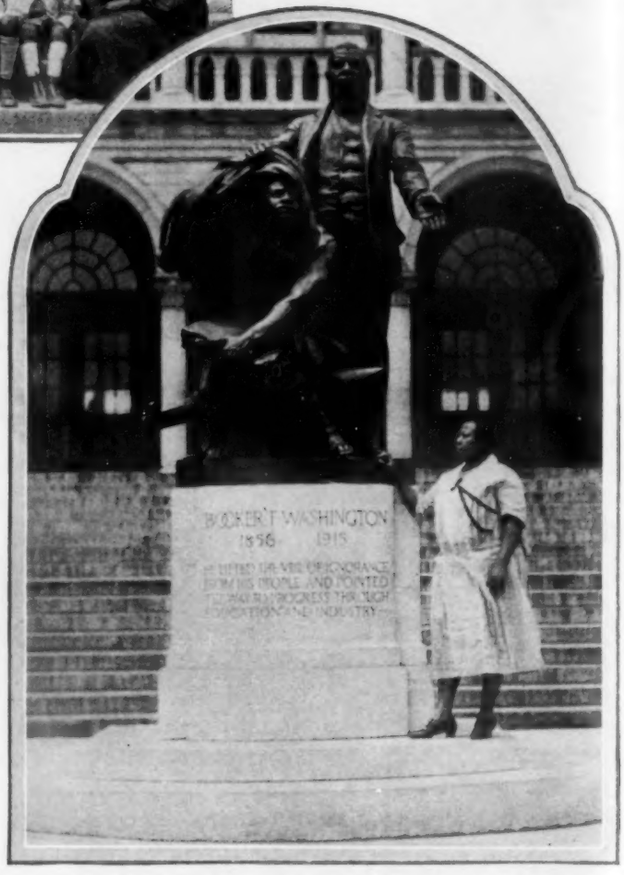
THE "black mammies" of the South are famous in song and story. Since long before the Civil War thousands of white families in the South have had negro women who served as nurses for little children. These faithful servants are held in high regard by the family and in many homes are considered a part of the household. Only those who have been cared for in childhood by their loving hands, those who have listened to the wonderful negro folk stories related so dramatically, or those who have been lulled to sleep by the soft musical voice of a faithful "black mammy," are able to appreciate and understand the southerner's kindly feeling for these loyal negro servants. The schools of Atlanta are consciously training "black mammies."

It is a policy of Willis A. Sutton, superintendent of Atlanta's schools, that the program of studies should carry courses that will meet the health needs of the individual, the family and the community in which the individual lives. He also believes that it is the duty of schools to teach pupils to do better those things that their economic or social status will naturally lead them to do when they leave school.

Three years ago when the program of studies of the Booker T. Washington high school was being revised, a survey was made of the various vocations in Atlanta that were open to negroes. It was found that a large number of negro girls and negro women were regularly employed as nurses of little children. It was also discovered that many of the leading physicians of the community were employing negro women as practical nurses. The physicians stated that they preferred these practical nurses for certain types of cases.

It then occurred to those responsible for negro education that it would be a good plan to offer courses in home hygiene and care of the sick and to require all girls attending the Washington high school to take the courses. This was

The class of first grade children used as part of the laboratory equipment in teaching the "black mammies."



Statue of Booker Washington, inspiration of 2,000 boys and girls who attend this high school.

A typical "black mammy" (above). A practical demonstration in face washing (at the right). The teacher who is directing the procedure is a graduate nurse.

done. A graduate nurse for a teacher was recommended by the superintendent and elected by the board of education. A course of study was organized with the following objectives:

1. To train girls to be better homemakers.
2. To train girls to serve as nurses of little children.
3. To offer a prevocational course and to stimulate a number of girls to take regular nurses' training in Spellman College, Grady Hospital and other local or state institutions offering courses for nurses.

In order that as many girls as possible might have an opportunity to take the course, it was placed in the eighth grade. This is the last grade before the end of the compulsory age limit. An advanced elective course is offered in the twelfth grade. The classes meet in a room that is part of the medical unit of the building. This room is equipped with two single beds, first aid cabinets, scales, sickroom equipment and supplies, magazines and books relating to health.

Some of the large units of instruction are: bathing the baby; preparation of milk for the baby; feeding the baby when well; how to feed sick babies; how to make a bed; taking and recording temperatures; sickroom procedures; how to care for children on automobile trips, on trains, on the street and in the parks; table manners; story telling for little children; emergencies and first aid; the selection and care of children's clothing; children's diseases, etc.

Fire Results in Laboratory Material

During the Christmas holidays in 1926 a large elementary school building located about four blocks from the high school was burned. In working out the problem of seating the pupils in adjoining schools, the superintendent in charge of high schools arranged for a section of the first grade to be transferred to the negro high school building. Only pupils of high I. Q.'s were selected. The classrooms were equipped with tables and chairs and other movable classroom furniture.

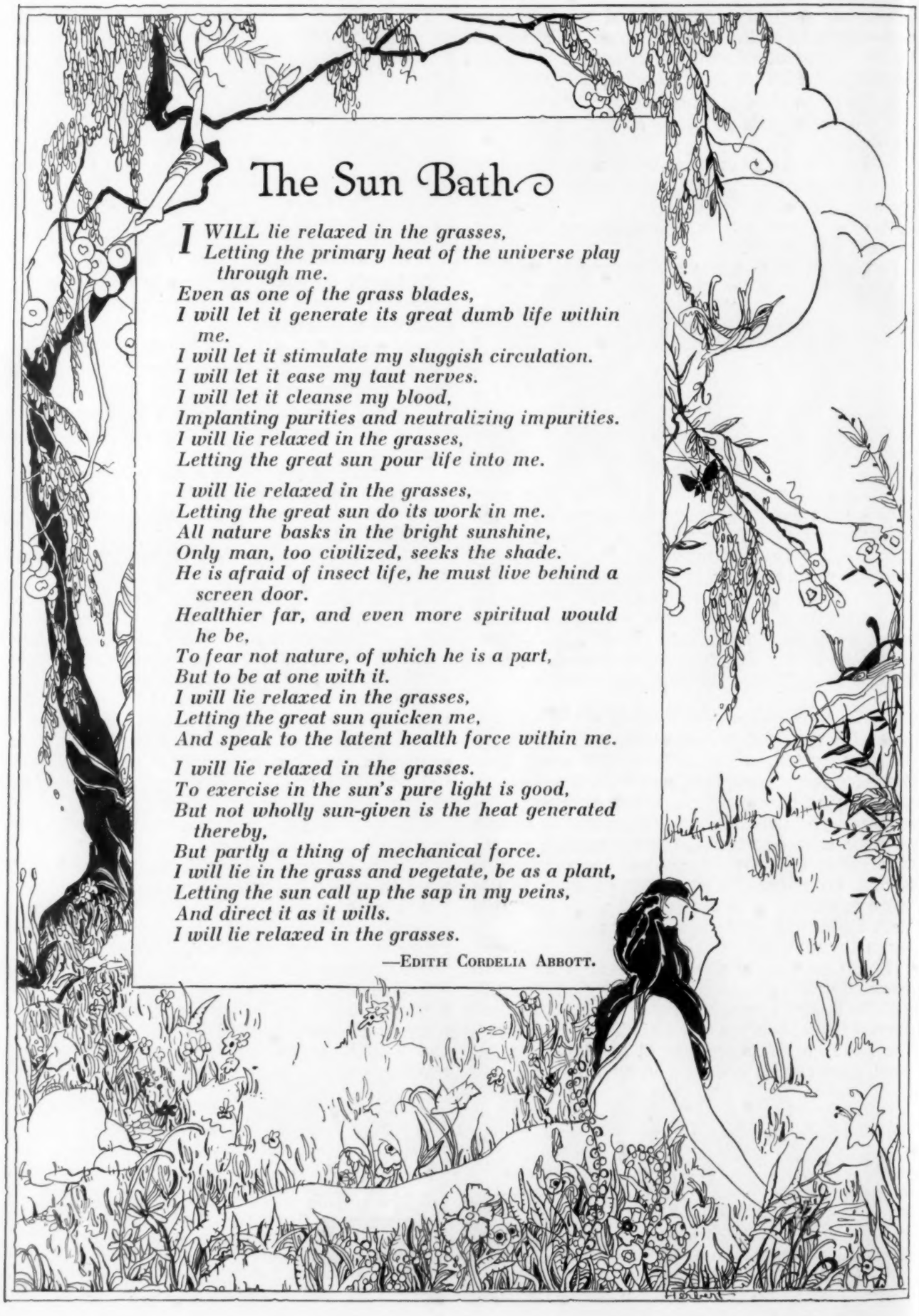
The first grade class has been used as a laboratory for the class in home hygiene to work out its health projects. Food is prepared and served from time to time, cleanliness is stressed, the little children are taught good table manners, and stories are told to them.

The Junior Red Cross, the Anti-Tuberculosis Association, and a negro insurance company have cooperated in equipping the medical unit used as a classroom. The city supervisor of nurses has made many excellent suggestions for the course. The local chapter of the Red Cross gave the teacher a scholarship at Pennsylvania State College summer school in 1926, and local physicians arranged for the teacher to work in the children's clinics at a hospital in Augusta in the summer of 1927.

Some Results of Three Years' Work

Although the class has been in operation for only three years the following results can be observed at this time:

1. Many of the girls who for financial reasons have been compelled to drop out of school have found employment as nurses of little children.
2. Many girls have part-time jobs as nurses in the afternoon, on Saturday and during the summer.
3. Organized groups of story tellers visit the children's ward at the municipal hospital and have furnished much entertainment for the sick children.
4. The pupils also visit elementary schools and tell stories.
5. Much health information has been carried into the negro homes. New standards of personal cleanliness have been established. The children are encouraged to apply in their homes what they have been taught in the school. Many remarkable stories are told at school of the practical application of first aid in the home.
6. A number of high school graduates have entered nurses' training institutions.
7. Public interest and support from white citizens has come as a result of the work.
8. The girls have a better understanding of matters that pertain to sex.
9. A select group of girls are trained each year to assist the nurse in handling first aid problems arising in the school. Many of these girls are well known in their neighborhoods and render valuable service in giving first aid.
10. Courses for practical nurses have been introduced in all the evening schools for negroes. In some schools two classes are in operation. The federal government through the Smith-Hughes funds is subsidizing this evening work.



The Sun Bath

I WILL lie relaxed in the grasses,
Letting the primary heat of the universe play through me.
Even as one of the grass blades,
I will let it generate its great dumb life within me.
I will let it stimulate my sluggish circulation.
I will let it ease my taut nerves.
I will let it cleanse my blood,
Implanting purities and neutralizing impurities.
I will lie relaxed in the grasses,
Letting the great sun pour life into me.

I will lie relaxed in the grasses,
Letting the great sun do its work in me.
All nature basks in the bright sunshine,
Only man, too civilized, seeks the shade.
He is afraid of insect life, he must live behind a screen door.
Healthier far, and even more spiritual would he be,
To fear not nature, of which he is a part,
But to be at one with it.
I will lie relaxed in the grasses,
Letting the great sun quicken me,
And speak to the latent health force within me.

I will lie relaxed in the grasses.
To exercise in the sun's pure light is good,
But not wholly sun-given is the heat generated thereby,
But partly a thing of mechanical force.
I will lie in the grass and vegetate, be as a plant,
Letting the sun call up the sap in my veins,
And direct it as it wills.
I will lie relaxed in the grasses.

—Edith Cordelia Abbott.

Sight Saving
What Does It Mean?

By Mildred A. Sheriff

IF YOU are one of those lucky mortals endowed by nature with a pair of excellent eyes, have you ever given a thought as to how you would adjust yourself were that precious gift partially or entirely removed from you by one stroke of fate? Have you ever thought what it means to conserve your sight by studying and applying a few of the simple rules of hygiene that your natural sight may always prove efficient? Or have you been careless, as most people are, in the squandering of this most precious gift, thinking its power unlimited in quantity and in time?

I recently had opportunity to observe the less fortunate in a large city hospital clinic where a specialist handled the constant stream of humanity seeking relief from pain or begging for something to be done for the precious organ of vision, injured beyond repair—grown persons with childlike faith in the doctor, thinking he had power to restore sight to the blinded eyes. A most pathetic and touching sight!

Here a young chap just entering manhood with all of the joys and expectations of life before him, stricken with that dread iridocyclitis, caused perhaps by pus pockets from diseased tonsils, neglected teeth or sinus infections. Next a little child, lovely, attractive, keen of mind, but entirely blind in one eye and the other under treatment for congenital cataract.

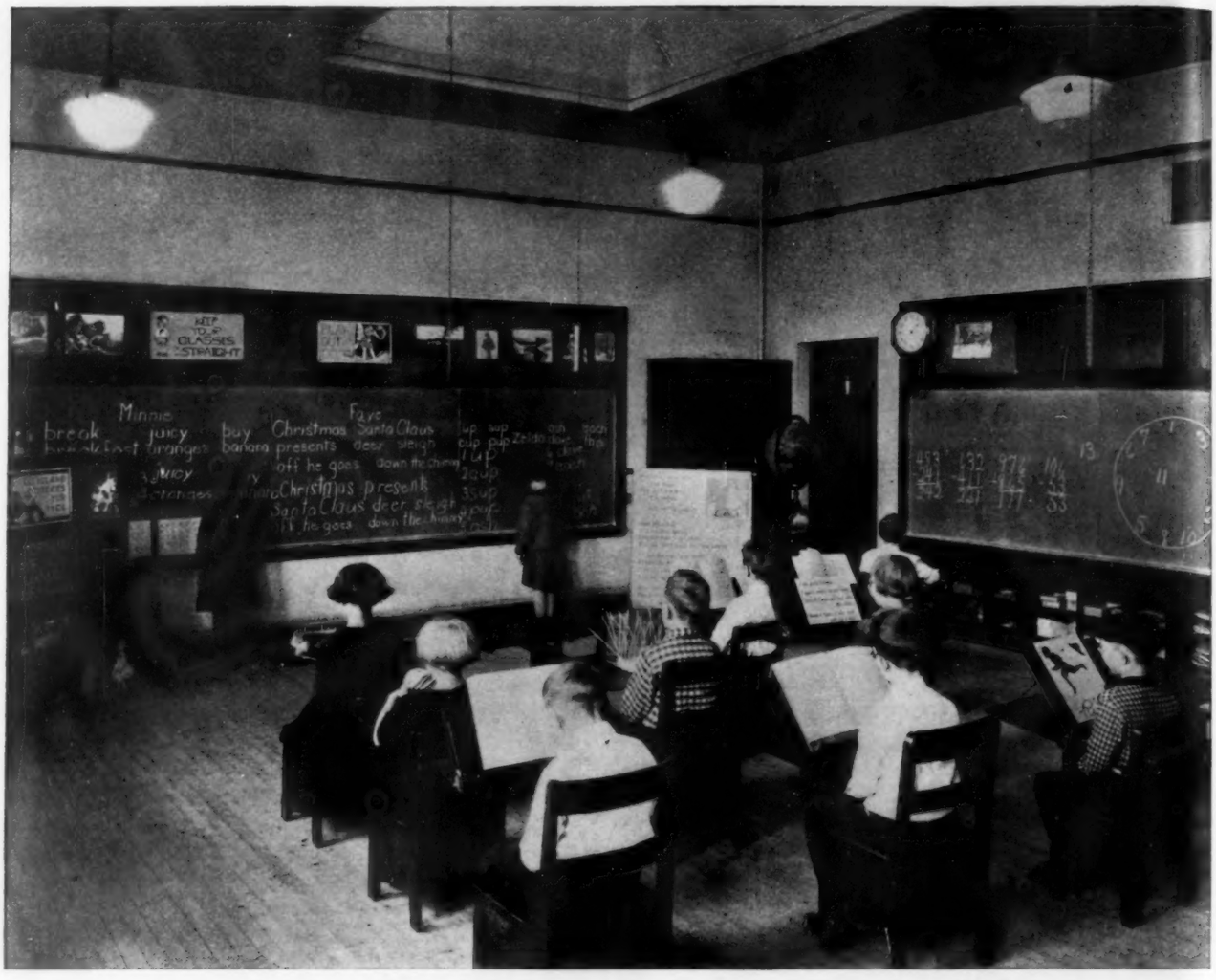
But now that I had seen the dark side of the cloud, I was to glimpse the silver lining. For several years a splendid movement has been carried on to combat this great waste of sight in children and to assure for those whose vision is impaired a useful place in the social world and a large percentage of happiness in life despite their handicap.

In Ohio, the city of Cleveland has acted as a pioneer in developing sight saving or sight conservation classes for children who have poor sight or whose sight will be damaged by too much use of their eyes. Other cities have followed the example and now most of the centers of population have found it expedient to establish such classes.

In what respects does this type of class differ from the regular form? Let us visit a class as the guest of the supervisor of sight conservation. We enter a school building well situated as far as transportation facilities are concerned. We pass down the hall after greeting the principal and enter a regulation sized classroom. Here, as our gaze wanders, we observe many things that tell us we are in a classroom especially prepared for its purpose. The shades controlling the light are a light buff, fastened in the middle of the casement so they may be pulled in opposite directions in order to eliminate rays of sunlight. Six lighting units of the indirect type, each containing five hundred-watt bulbs, hang from the ceiling. Adjustable and movable desks fill part of the floor space. In one corner stands the piano used for rhythmic work and musical appreciation as well as for the individual lesson that the child may be able to take.

On the table not far from us is a typewriter. This is used to write lessons to be read by the regular grade teacher. The touch system of typing is taught. Nearby is a sand table with an interesting garden project worked out. In the process of construction are book covers, lamp shades, dyed paper, woven rugs, doll sweaters, all made by the pupils. This hand work compares most favorably with the work of children with normal sight.

Our curiosity leads us to examine the working materials—speedball pens, pencils of soft black lead, the kind that will not blur easily, and rough cream paper generally lined with



There are numerous evidences of the fact that this is a sight saving classroom.

¾ inch lines for writing. We pick up a notebook and find "John Arnold—A Story of My Pets," in bold writing but well done. The story is interesting but too long to be made a part of this article.

In the meantime we are wondering where the children are. Finally we hear eager, enthusiastic voices and the sound of feet coming down the hall and we are told they are just returning from a rest period of supervised play with their teacher. We see enter the room at least a dozen children (for sight saving classes must be kept small, ranging in number from ten to sixteen) visually handicapped but normal in every other respect.

In answer to our puzzled expression the supervisor smiled and whispered, "These pupils have various eye conditions. The first two little girls have been operated on for congenital cataract. This boy has concomitant squint. The large boy in the back of the room is about to leave the group as his vision has improved sufficiently to warrant it, if his parents will cooperate by not permitting home work or too many movies. Soon the class will separate as some of these pupils go into regular classrooms for oral work." Then she added, "You will notice that the standard of work for these children is as high as for normal children."

"But can all subjects be taught?" I asked with great curiosity.

"Yes," she replied; "we can obtain material on most subjects in large print at the present time. If this is not available the lesson is read to the pupils. However, there are cases in which the visual defect is such that the doctor forbids even the use of large print and then further instruction is auditory."

As we leave the classroom, the lunch room is pointed out to us. We see an electric plate, a sink with running water and a supply of cooking utensils to be used by the teacher in preparing at least one hot dish for the lunch.

Are they happy? The room radiates with cheer. We almost envy the supervisor the numerous beaming smiles and good-bys bestowed on her as we make our exit from the building, thinking what a commendable step is being taken to make of these sight-impoverished children valuable assets to the community.

Texas Better Health Special

By Arthur H. Flickwir

WITHIN the last decade many large industrial corporations have become interested in the health and welfare of their employees. Some of them have been vitally interested in scientific health work and have given financial support to health demonstration projects in various parts of the United States. I believe the Texas Better Health Special train, which recently completed a month's tour of the state of Texas, was the largest project of this kind that has been undertaken.

For several years the Missouri Pacific Railroad has operated health cars in certain sections of Missouri and Arkansas, but the Texas Health Special was an entire train made up of two exhibit cars, two lecture cars, baggage car, diner and Pullman. Besides the train crew there was usually a personnel of twelve or fifteen trained physicians, sanitary engineers and technicians. The railroad was invited by Governor Dan Moody and Dr. J. C. Anderson, state health officer, to bring the train to Texas.

A typical group of Texas school children receiving instructions in health subjects during the tour of the health train. This photograph was taken at Crockett, Texas.

After giving careful consideration to the request, L. W. Baldwin, president of the road, and H. R. Safford, executive vice president, called a meeting of the state health officer, the chief surgeons of their lines in Texas, company sanitary engineers and local health officers of the larger cities in Texas. The outcome of the meeting was the decision of the railroad executives to furnish and equip the train and operate it over all the Missouri Pacific Lines in Texas.

The Texas state board of health, the U. S. Public Health Service, the bureau of entomology, the Association for Medical Progress, the bureau of animal industry of the Department of Agriculture and health departments of the larger cities were called on to furnish exhibit material and personnel to conduct lectures and demonstrations.

The train was assembled at Little Rock, Ark., under the direction of L. A. Henry, chief sanitary engineer of the Missouri Pacific, who had experience in equipping health demonstration cars.

The first car contained models and exhibits pertaining to general sanitation most needed in the South, particular attention being given to models showing the proper kind of screens for houses, mosquito control work, models of fly-proof toilets, construction of wells, sewage disposal, garbage disposal, rodent control, etc. Then came a lecture car in which public lectures were given by specialists in the different departments of sanitation shown in the exhibits.

The next car was also a lecture car, in which general topics of disease prevention and safety were discussed and illustrated by charts, delineascopes and films. In the fourth car was a model of a complete dairy farm and a milk

plant with a miniature pasteurizing plant in operation. This car was presided over by Dr. C. E. Smith, milk specialist of the U. S. Public Health Service. Dr. Smith gave practical talks on the production of clean safe milk.

The train traveled more than 2,500 miles and visited 115 towns and cities. Seventy thousand people were shown through the train and listened to the lectures. School superintendents and teachers were notified weeks in advance and had the entire scholastic population of the towns, white and colored, at the stations when the train arrived. The lectures were as practical as possible and couched in simple language. There was perfect cooperation all along the line; the railroad's chief surgeons accompanied the train and the local surgeons met the train at each station and assisted in the work. This indeed shows the trend of modern medicine, the local doctors in more than 115 towns cooperating in this great movement of health education.

The train stopped at several stations on a branch road out in west Texas near the Rio Grande and a few days later returned over the same route. I counted seven new fly-proof toilets that had been erected within two days and I saw many others under construction. Boys were placing top minnows into stock ponds after having cleaned the edges of the ponds, in order that the minnows might destroy the mosquito larvae, as the lecturer had advised.

The train covered all of east, south and west Texas, going even to the Rio Grande valley. It started at Longview in east Texas on January 16 and showed the last time at Beaumont on February 12, nearly a month. I am sure a great deal of good will come from this important movement for health education.

Tuberculous Physicians *and their Contributions*

By J. A. Myers

GASPARD LAURENT BAYLE was born in 1774. After finishing his medical course he devoted himself to arduous study at the bedside and to careful postmortem observation. It is said that he probably contracted tuberculosis at the postmortem table, for he became tuberculous and hence developed a tremendous interest in the disease. He made a careful study of symptoms and came to realize that tuberculosis often may exist in persons without symptoms.

Prior to Bayle's time Sauvage had described twenty different types of tuberculosis. Morten had described sixteen different kinds and Portal had described fourteen. Bayle reduced the number to six.

Through his careful work he eliminated many errors that had previously existed and established some new facts. For example, he felt that infants less than a year old and senile people even past eighty years may die of phthisis. Moreover, he pointed out that the duration of the disease may vary from twenty-five days to forty years. He was not unaware of the prevalence of consumption but he did not realize that parts of the body other than the lungs might be the location for the beginning of a tuberculous process.

At the autopsy table, in the lungs of persons who had met with accidental death, he saw tubercles. He came to the conclusion that most consumptives before death have other organs besides the lungs involved, such as the larynx, the trachea, the intestines, the mesenteric and cervical lymph nodes. Seventeen per cent of one series of cases studied showed involvement of the larynx, while 67 per cent of a series showed involvement of the gastro-intestinal tract.

Bayle usually rendered an extremely bad prognosis; therefore, his treatment was poor. He said that "phthisis is nearly always incurable and fatal; but it is often confounded with other diseases some of which are easily cured." In a few cases he felt that patients actually had recovered, which led him to say, "these really ought to encourage us never to abandon consumptives altogether. Even if nearly all succumb in a few months or at intervals of from one to two years, there nevertheless are some who can live a great many years, especially when one can keep away from them causes that may set up a serious irritation in their lungs."

As a basis of a series of lectures which he presented before the Society for the Study of Medicine in Paris and later published in book form, he used more than 900 autopsies of persons who had died of consumption, many of whom he had carefully studied at the bedside.

Bayle died of tuberculosis in 1816. It has been said that "what he accomplished in a short lifetime brought the knowledge of tuberculosis farther forward than all that had been done before him."

The SCIENTIST in Public Health

By R. C. Williams

Scientific research in matters pertaining to the public health requires aid from the field of art. This artist has for many years been engaged solely in preparing illustrations for scientific publications, drawing from diagrams, from life and from microscopic slides.

A MAN who for the last twenty years has taken a prominent part in scientific research as it pertains to the public health, upon returning from a meeting of scientists at which questions of disease prevention and promotion of the public and personal health had been under discussion, exclaimed: "It is inspiring to think that scores of trained workers are daily bending their efforts to learn more about the prevention, control and cure of the diseases of man."

His statement should be a pleasant thought to the general public, and to physicians, health officers and nurses as well. Throughout the world efforts are being made by individual workers, small groups and larger organizations to solve the many perplexing questions relating to the maintenance of human health.

How the Scientist Works

Age-old problems—like cancer and infantile paralysis—still defy solution, and new questions arise constantly. It is of interest to know something in a general way of the methods that these trained scientists employ and to see them for a time at work on some problem.

To the average person not actively associated with some aspect of the work relating to the public health or to the health of the individual, the value of the contribution made by various organizations and associations of physicians, sanitarians, health officers and others may not at first glance be apparent. Yet such organizations play a part of major importance in the fields of research and disease prevention.

Their meetings are filled with the presentation of papers and discussions on subjects in which the members are deeply interested. This or that individual or group of workers will relate the experiments, the findings or perhaps only the perplexing and unsolved difficulties that have arisen in connection with some investigation. Another individual or group that has been working along closely related lines will have perhaps solved some of the very problems that have perplexed the first group, and at the same time have failed to accomplish certain of the results that the first group has effected. The work of both groups has been furthered by an interchange of ideas and experiences.

The meeting of the association or organization has served as a clearing house for valuable ideas or information. The transactions of such meetings are usually published and distributed, so that all members, as well as those attending the meeting, are able to keep informed of the progress of the work to which the organization is devoted.

Interchange of Ideas

Furthermore, the exchange of ideas and findings through organizations of this kind serves as a check on the accuracy of many phases of study and research. We will say that A, in adapting the reported results of B to some phase of the work in which both are interested, discovers that "it doesn't work." The usual result

is that A and B get into communication, either directly or possibly through the medium of a subsequent meeting of the organization. Perhaps it is discovered that B did not properly apply A's methods. On the other hand, it not infrequently happens that A may have reported results obtained under a certain set of conditions only, and B has discovered that under certain other conditions A's findings are not correct. Both A and B and the common cause are benefited by the discovery, and the organization in which they are associated for the interchange of ideas and information is entitled to credit.

Investigation of Alleged Cures

Incidents in recent years in which sensational announcements of the discovery of specific "cures" for certain diseases have been tried and found wanting by well organized scientific associations have demonstrated the immense value of these groups in the cause of public health.

Nearly twenty years ago, an observant physician in Alabama noticed that a number of patients who came under his care at the state hospital for the insane had marked skin symptoms. The skin on the backs of their hands, and sometimes on their feet and legs, was rough and scaly. Others had a scaly ring, or cravat, around the neck. This caused the doctor to begin thinking and reading. Before long, he recognized that the condition was one that had been known in Europe for a century or more but had not been recognized before in the United States. The disease was pellagra. Physicians all over the country, especially in the South, soon began to recognize and report cases of pellagra. Presently, it was found that the disease was widespread and a menace to the public health.

The recognition of this disease soon stimulated scientists to study its cause, mode of spread and prevention. Individual workers, unofficial commissions, as well as official agencies, federal and state, began to attack the problem. The matter was approached from a number of angles. One group endeavored to show that it was caused by a certain germ carried from person to person by an insect. Others worked on the theory that the disease was due to eating certain articles of food; as, for example, corn meal.

Search Is Slow and Tedious

Years passed. The search for the cause of the disease went on. A bit of knowledge was gathered here; a little more, there. It was shown that it was not possible to convey the disease from one person to another. This was proved by an elaborate and well conducted set of experiments upon volunteers. It was also shown that a particular sort of diet was beneficial to patients suffering from pellagra and that frequently they recovered after receiving the diet treatment without medication. Many cases were studied under varying conditions. After years of patient research, it has been proved to the satisfaction of the majority of physicians that pellagra is caused by a diet that is faulty in having too little of an as yet unidentified essential that is contained in such foods as meat, milk and yeast.

Not all disease investigations are confined to the laboratory. Modern office equipment and machinery are essential for preparing, tabulating and checking data on which statistical studies of disease are based.

This example is mentioned to show how long and tedious is the process of acquiring scientific contributions on a given disease.

A few years ago articles began to appear, first in daily papers, and later in the medical journals, about families or larger groups becoming ill and even dying following a meal, a church supper or a picnic. Instances were reported in different sections of

the country. Apparently the illness came from some article of food. Many investigators began to study the problem. From months of research, checking and rechecking, and experimentation, it was found that the condition was what is known as botulism, due to the botulinus germ, which contaminates certain articles of diet, as canned fruits or vegetables. The botulinus germ was first described in 1896, but its frequent association with cases of food poisoning was not always recognized until within recent years. Months of persistent and intensive effort by competent workers have resulted in a clearer understanding of the nature of this disease and of the methods for preventing outbreaks.

The influenza epidemic of 1918 renewed general interest in this widespread and often fatal disease. Numbers of workers have studied various germs that were thought to cause the disease. Others have endeavored to produce a vaccine that would protect against influenza. Investigators have studied the disease by means of obtaining reports from selected groups scattered in many sections of the country. This study of the occurrence of the disease is unusual in that, instead of studying actual cases or working in the laboratory, the study is based on card reports of numerous cases, and an effort is being made to analyze from a statistical standpoint data from thousands of persons scattered throughout the United States.

Certain interesting facts have been noted from this study; for example, that young adults between 15 and 24 appear to be attacked less frequently than those in the other age groups. It also appears that there is a synchronous seasonal variation irrespective of climate in the occurrence of influenza. This study is being conducted by the United States Public Health Service.

The examples cited are intended to show the public something of the methods employed and the patience and persistence required in order to gain even a small amount of knowledge about a given disease. The time perhaps will never come when every disease is thoroughly understood. However, progress is being made from time to time, and one by one the diseases that harass the bodies of mankind are being conquered.

Emotional Training for College Students

TEN PER CENT of college students will fail unless they receive training and discipline in their emotions and the other 90 per cent would be made more effective if they had training in mental hygiene, Dr. Smiley Blanton declared in a recent address quoted in *Welfare*.

The greatest tragedy resulting from lack of emotional training lies in the fact that the normal person never succeeds as he might succeed if he knew how to make the most of his powers, he said in a plea for a complete program of mental hygiene in colleges.

Dr. Blanton declared that the successful student often needed help as well as the obviously unsuccessful. When a popular student commits suicide, as sometimes happens, his friends are mystified. If the student had been studied his difficulty might have been recognized in time to avert the tragedy. "The depressed student does not hang out a sign reading 'I am depressed.' Often he does not realize his own problems and he exhibits no signs for his teachers to see," he continued.

The greatest obstacle to the initiation of a mental hygiene program in colleges is the difficult attitude of the faculty. Most teachers ignore the aim of education—to prepare for life. Their goal is elimination of the unfit. "My job is to teach. If a student doesn't learn, let him get. This college is not a hospital for the feebleminded," says the faculty member.

A mental hygiene program is especially needed in state universities, where from one fourth to one third of the students are dropped because they cannot carry on the work. Students who are thus forced out of school should be told what to do instead of attending college. They should leave the school with some confidence in the future, rather than in the black atmosphere of failure and disgrace, Dr. Blanton insisted. They need understanding and assistance.

Study of the successful student might prove to be the key to the problem of the unsuccessful. "If the psychiatrist can find out why successful students succeed he may make a valuable contribution to the field of mental hygiene," said Dr. Blanton.

At present colleges are too conservative to allow the addition of mental hygiene to the curriculum, in Dr. Blanton's opinion. The movement will have to begin in smaller and endowed colleges. The efforts of the psychiatrists for the present will have to be directed toward getting the college to see the need for mental hygiene in the curriculum.

HYGEIA
THE HEALTH MAGAZINE
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Plain Facts about Health and Disease

THE PHYSICIAN AND THE AVIATOR

MAN was not made to fly—but he flies anyway. Birds were made to fly but man flies artificially. What the bird has in his body to enable him to know where he is in relation to the earth and the angle at which he is flying, man provides by an earth induction compass and a bank and turn indicator. Without these special senses man is a pretty poor flier. He is much worse when he tries to fly without a perfect development of the special senses with which nature endowed him.

Aviation medicine, as pointed out by Lieut.-Col. Levy M. Hathaway, flight surgeon in the medical corps of the U. S. Army, is a peculiar specialty. It is concerned with the uses of human organs for purposes for which they were not intended. The birds have marvelous vision, which their mode of life necessitates. No one knows how many generations were passed before the vision of birds developed to what it is today. When the earth is hidden by clouds and when the horizon is not visible the air man cannot tell with his unaided senses whether he is flying horizontally or dangerously near a position in which his plane is bound to slip and fall. In high altitudes he needs oxygen supply and adjustments to barometric pressure, which mean to him the difference between life and death. In addition to all this the military air man watches for the enemy, observes the territory, attacks and defends, pursues and flees. The flight surgeon has to pick those who will be competent and has to keep them in such condition that they will not fail through physical defects in their own bodies.

The Department of Commerce of our government, through its bureau of aeronautics, has selected 300 medical examiners to determine the competency of men who act as aviators in the field of commercial transportation. More and more invention provides substitutes for the senses men have not developed, so that daily flying becomes safer. But the time has not yet arrived when any one who wishes may pilot a plane as men now drive automobiles. Federal licenses are required for fliers between states, and many individual states are beginning to see the necessity for physical examination before issuing state licenses. The human being is not a bird—but some are more birdlike than are others. The physician, by examination, distinguishes between them.

HEALTH EDUCATION IN COLLEGES AND UNIVERSITIES

HEALTH education is so new in the curriculums of schools, including even the grade schools of this country, that courses are not well organized, suitable textbooks are rare, and the entire matter may be described as in an experimental stage.

The bureau of education of the United States Department of the Interior has endeavored to survey the entire field of health education in colleges and universities. Only by having a comprehension of conditions as they are may one devise plans for betterment.

Practically all leading universities and colleges arrange to give a complete health examination to members of the freshman class in the week preceding the beginning of the fall session. In but few schools, however, have arrangements been made to repeat these examinations at regular intervals. The survey made by the Department of the Interior indicated that eighty-three out of 180 institutions have required courses in personal hygiene. The subject of social hygiene has, however, attracted much more attention, so that 101 institutions.

including forty-five public and fifty-six private schools, give courses or special lectures on venereal disease and in seventy-seven of these the work is compulsory. As has been stated, the courses in personal hygiene vary in different colleges and universities. In some institutions the instruction consists of a few lectures which students are required to attend; in other cases there are graded courses with systematic study and reference to the available textbooks.

Significant in this connection is a report just made available by Dr. R. W. Bradshaw of Oberlin College, Ohio, relative to the health of students who support themselves. In practically every college today many students work their way through school. Their employments include waiting on tables in college dining halls, clerical work in offices, furnace attending and gardening in homes surrounding the institution. Not infrequently these students are superior in scholarship; many of them attempt to carry on athletic and social activities as well. Since their time is greatly limited, particularly for rest, they suffer more with fatigue than do students who are not compelled to work their way.

Dr. Bradshaw found that the commonest type of illness among students is the common cold, sore throat and influenza. The group of students who supported themselves suffered from a 36 per cent higher incidence of such infections during the year than did the non-self-supporting group.

Those students who were working their way spent 1,269 days per thousand in the hospital, while the number of non-self-supporting groups spent 947 days per thousand in the hospital. These figures are also supported by investigations made by the U. S. Public Health Service in various places.

It is significant that the financially handicapped students who work their way through college have a higher percentage of illness than does the naturally independent group. Unquestionably the strain of such work and the increased fatigue have some bearing.

Since these students represent a type which is likely to be of the greatest value to the community when they emerge from college and begin to take part in the work of the world, their care is of the greatest importance. The factors related to their illnesses deserve the most careful attention and study. Obviously a suitable course in hygiene, particularly emphasizing personal care of the body and the establishing of standards as to hours for work, play, social activities and rest will mean much to them. The need for repeated examinations so that a halt may be called on overstrain in plenty of time to permit recovery is apparent.

HOW MEASLES SPREADS

MANY parents believe that if there were no schools children would escape measles and probably most other infectious diseases now common.

School health officers and many others are convinced that schools are less responsible for the spread of infection than is supposed, and that the home as a source of danger is no less prominent. This question is discussed in a recent report of the Medical Research Council of Great Britain, which shows clearly that there is right and reason in both of these views. The report is based on investigations carried out mainly in Glasgow by Dr. James L. Halliday of the health department of that city. They reveal a relationship between housing and infection and provide an explanation of the part played by the home.

Measles is much more fatal in the earlier or preschool years than in children of later childhood. Therefore conditions that favor the incidence and spread of measles in younger children lead to a greater mortality.

In the tenement houses common in Glasgow and other cities in Scotland the several families in a large tenement make use of a common entrance, and the occupants, children as well as adults, are thrown into repeated contacts in going in and out. Among the families in a selected group of houses of this class not only did the infection pass readily from family to family but there was a high incidence and fatality among children below school age, in fact, three and one-half times that among children of the ages 5 to 10.

On the other hand, in a housing scheme area in which each dwelling has its own separate communication with the street not only was the amount of spread among families much less but the incidence of measles among children under 5 was less than half that found in the older group. As a result of further inquiries Dr. Halliday found that in the better residential areas of Glasgow the majority of children escape measles until they attend school, while in the poorer districts the disease is predominantly one of infants.

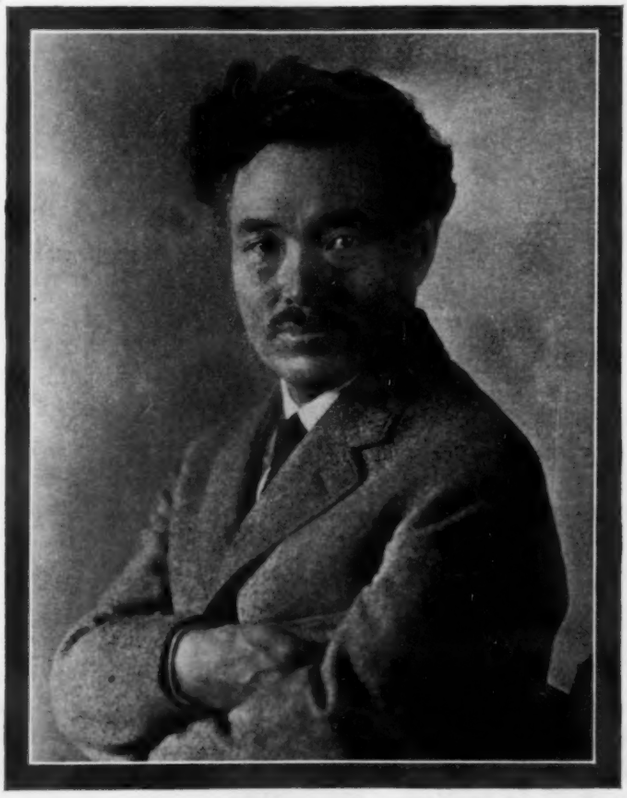
These observations, which are confirmed by those made in other parts of the country, seem to warrant his general conclusion that although in Great Britain measles is essentially a disease of childhood the period of child life in which an

attack takes place differs considerably according as circumstances vary.

Measles may be spread by close association of children either in the school, where skilled, watchful care is not constantly exercised to exclude it, or with equal or greater readiness by the contact of children in and about the home. If epidemics of this disease are to be controlled, intelligent watchfulness must be exercised both in the home and in the school. In no situation can the family doctor or health adviser, cooperating with the health officials, be of greater service to his clientele and to the community than by wise instruction and control in the matter of the contagious diseases of childhood.

HIDEYO NOGUCHI—MARTYR OF SCIENCE

ANOTHER martyr of science has given up his life in the endeavor to emancipate man from the ills of his environment. The announcement of the untimely death of Dr. Hideyo Noguchi, distinguished bacteriologist of the Rockefeller Institute for Medical Research, as a victim of yellow fever, which he was engaged in investigating in the Gold Coast Colony in Africa, has brought poignant sorrow to the world.



HIDEYO NOGUCHI

There is a grim tragedy in the circumstance that Noguchi should have succumbed to the very malady that he himself, perhaps in larger measure than any other single individual, had helped to eradicate from the Americas and was determined to drive out of the few remaining regions where civilization is only slowly penetrating. According to the scanty press reports available, Noguchi contracted the insidious fever during a laboratory experiment. He had embarked on the attempt to ascertain the relationship between the South American and the African yellow fever and the source of the latter. The problem was solved and Noguchi died two days after the date set for his return to this country.

The conquest of yellow fever, "that terrible scourge of tropical countries which for centuries held dominion, and against which man seemed powerless to fight," is a romantic chapter in the history of scientific research; but it is also a pathetic story. On Tuesday, Sept. 25, 1900, the name of Jesse W. Lazear was graven upon the portals of immortality, when he succumbed to yellow fever during the classic investigation, by a commission of the U. S. Army, of the relation of the mosquito to the transmission of the disease. There were other heroes too in the story of that monumental research, and now he, who finally succeeded in identifying the infectious agent and helping to drive it out of one after another of its traditional lairs, has been attacked unaware in one of the final onslaughts upon an unrelenting enemy of mankind.

The fruits of great victories are ofttimes costly but the sacrifice is supreme when they are gained through the loss of a master mind. In the death of Noguchi at the height of his intellectual power, the world of science—and equally that of humanity—mourns the loss of an eminent investigator whose talents have often been challenged and never found wanting. It is rare to find equal intelligence and intrepidity, energy and scientific enterprise, manliness and modesty molded together for effectiveness in a human soul.

In these qualities Hideyo Noguchi upheld the best traditions of a master mind of medicine.

The Long Road to Polly's Hanky

By

Jennie MacMaster

POLLY'S hanky was so very happy that it just had to flutter gaily from her pocket as she walked. You see a dreadful thing had happened to the poor little hanky only the day before—Polly had forgotten it! She had gone to school and left it folded in the box at home. And hankies do not like to be forgotten. They like to go to school too.

That is why Polly's hanky was so very happy on this particular morning. It simply could not keep still. When Polly slid into her seat, the hanky snuggled close to her long blue pencil with such a happy sigh that the pencil cried out, "Gracious me, why are you so happy? One would think that you were glad to come to school!"

"Oh, I am," said the hanky. "You don't know what a long journey I took just to come to school with Polly."

"No, I don't know anything about it, and I don't see what good you do in school anyhow—you can't write."

"No, of course I can't; but I'm sure that you have seen how quickly Polly reaches for me when she wants to sneeze or cough. My work is to catch her sneezes, so she won't cause other children to catch colds."

"We-ell," the blue pencil deliberated, "I think that is a pretty good job. But you said something about coming a long journey. From what place did you come?"

"From away down south. I had the quaintest home, and I've had the most adventures! Don't you want me to tell you about all of them?"

"Yes, do!" The pencil rolled closer. "I like adventure stories the best of all."

"Well, first, I must tell you about my home because, you see, that was where my adventures really began. The very first thing I remember I was a wee baby all shut up tight in a tiny green cradle on top of a cotton stalk. The warm southern sun shone on my cradle all day long and made me want to stretch out and grow. I couldn't stretch, because my cradle was built tight around me, but I was getting so much sunshine and fresh air that I couldn't help growing, so what do you think I did?"

"I don't know," said the pencil; "I should never have known what to do. Hurry and tell me!"

The hanky laughed softly, and said, "Well, I couldn't help stretching and growing—the sunshine and fresh air just made me do it—till one day the sun peeped in through little cracks in my cradle—"

"Mercy me, what made the cracks?"

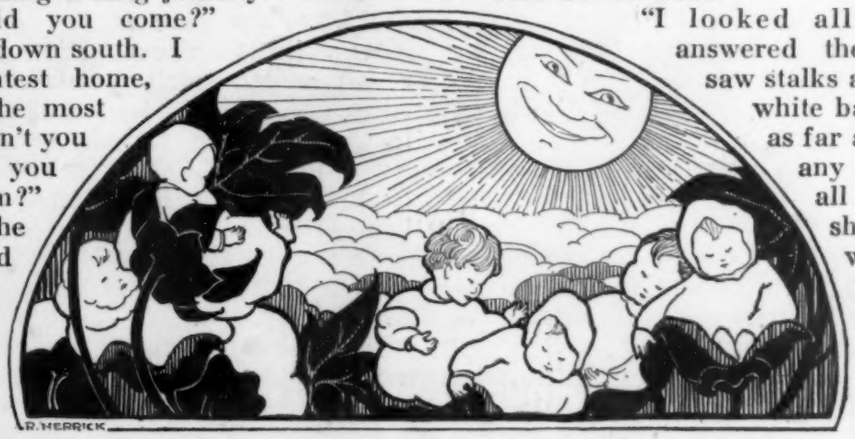
"I did," laughed the hanky; "I couldn't help growing, and cradles can't grow, so there wasn't anything left to do but to break the cradle."

"Then did you stop growing?"

"Dear me, no; with my cradle open I got so much more sunshine and fresh air that I grew faster than ever. Why, in only a few weeks I was a great fluffy white ball!"

"What did you do then?" The pencil rolled so close to listen that he almost fell out of the desk on the floor.

"I looked all around me," answered the hanky, "and saw stalks and stalks of big white balls like myself; as far as I could see in any direction it was all white. The sun shone on us till we puffed out fluffier and fluffier, while the south wind rocked us on our stalks and caressed us and whispered



"The sun shone on us till we puffed out fluffier and fluffier."

thrilling stories about the adventures that were in store for us.

"Then, early one morning we heard singing, and when we stretched up high to see who it was, there were ever so many dark-skinned men and women coming through the field. They wore broad hats and bright colored sunbonnets. You should have seen all those colors in our white field. It was cheerful, too, with the singing there in the sunshine. The south wind hurried through the field to kiss us good-by and to whisper that these dark people had come to get us ready to start on our adventures. Soon they began to pick us out of our cradles and thrust us into long brown sacks—"

"My, how dreadful!" cried the pencil.

"Oh, no," the hanky quickly answered; "it was time for us to leave. Don't you know it is wonderful to have a special work to do. Your special job is to write Polly's lessons; mine is to catch her coughs and sneezes. She couldn't have used me if I had stayed a fluffy ball in a cradle. I had to go through my adventures so I would be ready for her when she needed me. I'm glad I didn't stay a baby in a cradle. I like to be Polly's hanky!"

"Yes, of course," agreed the blue pencil, "and I like to write her lessons too! We both like to be her helpers, don't we?"

"I liked Polly the minute she stretched up to the counter to look at us."

"Sure we do, and the dark-skinned people were being helpers too. When they had picked till their sacks were full, they shook us out into soft white piles. Pretty soon wagons, with high sides that made them look like houses, came and took us to a building that they called a gin."

"A gin," cried the blue pencil, "what a funny name! What is a gin?"

"It's a building that is put up just for cotton balls like us. The wagon that took us there pulled in under a shed with a long tin tube in the roof. A dark boy got into the wagon and moved the tin tube all around over us and, as he moved it, we were suddenly sucked up through it into the gin."

"Oh-h," the pencil sighed, "what an exciting way to take a ride!"

The hanky was all aflutter. "Yes," it nodded, "and that was only the beginning. We went through interesting machines that did funny things to us. Then we were packed down tight into a huge bundle that they called a bale. Lots of the bales were put on a platform till another wagon came and took all of us to the railroad station."

"What a lot of adventures for one little hanky to have!"

"Oh, but there were lots more," confided the hanky. "In a few days we were stacked in a train which took us on a long ride to a big factory where other machines combed us out and wove us into cloth just like I am now—only they had to take us to still other machines which cut us out and sewed us into hankies."

"I don't think I'd like that much," the blue pencil said.

"When the factory people had made a lot of us, they folded and counted us into boxes. After that we had another long train ride to a wholesale house. Then one day some of us were sent to a store where a lady spread us out on a counter. That was where Polly found me!"

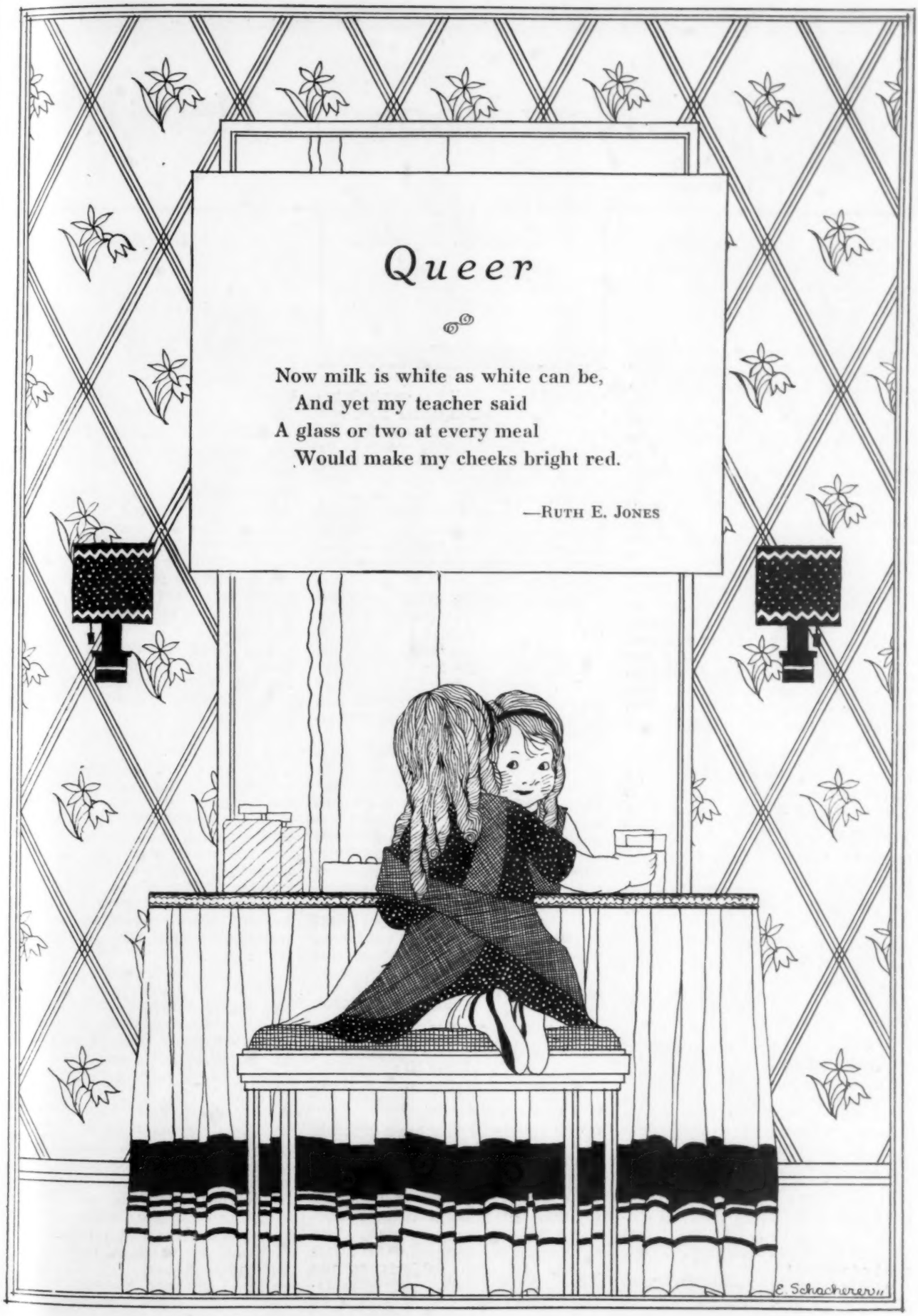
"Gracious, I'd think you'd have been tired!"

"Tired!" scoffed the hanky. "Tired, when I saw Polly? I liked her the minute she stretched up to the counter to look at us. I was dreadfully afraid that she might like one of my sisters the best. When she chose me I was so happy that I could hardly stay in the bag till she carried me home. Every day I am more proud that I belong to her, and how I do like to catch her coughs and sneezes! It makes me feel awfully bad to have her leave me here in her pocket when she sneezes, but I feel even worse when she leaves me at home. Don't you think that when I've come such a long, long road and through so many adventures to help her—"

But just then Polly reached quickly for her hanky and almost immediately the pencil heard her sneeze.

As soon as Polly put the little hanky back in her pocket, she reached into her desk to get the blue pencil. All that day the pencil was so busy that he didn't have time to say anything more to the hanky, but he kept wondering what it was she had started to say.

I wonder if there is any little boy or girl who could tell him?



Queer

Now milk is white as white can be,
  And yet my teacher said
A glass or two at every meal
  Would make my cheeks bright red.

—Ruth E. Jones

New Books *on* Health

Reviews of Interest to General Reader, Parent and Teacher

HEALTH AND WEALTH

A Survey of the Economics of World Health. By Louis I. Dublin, Ph.D. Pp. 359. Price, $3. Harper & Bros., New York, 1928.

STATISTICS are deadly as reading matter except for the statistical or end-to-end fanatic. Some people always comprehend more easily when they know that so-and-so many of something will go such-and-such a number of times around the world. If this group ever really loves to revel in its favorite passion, it can find no better or greener pasture than in the realm of health.

The guide book to this land of mathematical geography is now available in a collection of essays by Dr. Louis I. Dublin, noted as an economist and statistician in the insurance field. Under the attractive title "Health and Wealth" he has cumulated some of his recent writings. The trends of disease, their cost to the community, the effects of modern methods of prevention of disease and for the prolongation of life are made apparent in numbers that even a child could comprehend.

Some of the facts here available are startling. The cost of rearing a child to the age of self-support is approximately $7,238. Interest on the investment, insurance and similar factors increase this to almost $10,000. A man whose maximum earnings are $5,000 a year represents a value of $34,320 at 18 years of age and of $49,100 at 32 years of age. Our national wealth in materials is calculated at $321,000,000,000. Our human assets seem to represent $7,500,000,000,000.

Consider what it costs to keep these human assets healthy and in good condition of repair. About 2 per cent of the population are at all times in need of medical service. They employ 150,000 doctors whose incomes, Dublin says, are a little over $3,000 per year as an average. Then there are 50,000 dentists, 140,000 nurses, 150,000 practical nurses, about 100,000 orderlies, and general hospital helpers, and beside this the cost of drugs, hospital care and similar material outlays. It runs to a little over two billions of dollars each year. That's a lot of money!

The average family spends about $80 a year for sickness, but as opposed to the Pullman porter's remark about his one dollar tips, few families think themselves under the average. The difficulty seems to be that the sickness comes in bunches and the expense all hits at a time when the family has not prepared for it. In these days of instalment buying and luxurious living when is any middle class family ever prepared for unusual expenses such as sickness?

Well, one thing about statistics and figures—a small dose goes a long way. Dr. Dublin provides all sorts of interesting computations. He does not write for those whose brains become bewildered after they have used up their fingers and toes in their mathematical cogitations.

However, as a settler of arguments when facts are needed in the health field, his opus has strange virtues. There is something delightfully sedative about the simple announcement that less than 2,000,000 of the 8,500,000 women gainfully employed are married and that less than 125,000 of the 1,000,000 professional women are married. It answers a lot of questions—but hold! It also stimulates a lot of new ones. That is the main fact about this interesting work—it is both a tonic and a sedative.

MORRIS FISHBEIN, M.D.

FOOD INFECTIONS AND FOOD INTOXICATIONS

By Samuel Reed Damon, A.M., Ph.D. Price, $4.00. Pp., 266. Williams and Wilkins Company, Baltimore, 1928.

THE author of this book presents data of decided importance to health departments and public health workers. It is, as the author asserts, an attempt to bring together information that is scattered through many journals. The data, therefore, represent late information on such subjects as the so-called infections and intoxications from food.

The book is divided into three parts, which division apparently represents the author's own ideas as to the separation of the subjects discussed under each part. If for no other reason than the accumulation in a readable form of the mass of data on food poisoning this book should prove of service to many.

J. C. GEIGER

HEALTH ESSENTIALS

By Andress, Aldinger and Goldberger. Pp. 481. Price, $1.72. Ginn and Company, Boston, 1928.

THIS volume is planned primarily as a high school textbook in health. The association of one of the authors with educational hygiene in the New York schools, and the experience of the others in the health education field is guarantee of the quality and reliability of the material.

The book is easily readable. Each of the chapters is supplemented with references to additional reading material and with questions for general discussion. The illustrations are diagrammatic and instructive.

Questions that are debatable are presented simply and honestly and the authors do not hesitate to state their decisions in such matters, although at the same time they provide the reader with sufficient evidence to help him form his own opinion. This volume supplements adequately the simpler lessons in health topics presented in less technical works for use in the lower grades.

The authors are convinced that alcohol and tobacco are poisons. The entire contents of the chapter covering these subjects is planned to present these drugs to the reader as liabilities in a successful existence. In the references at the end of this chapter the address of the American Medical Association is incorrectly given at 55 North Dearborn Street, Chicago. Inquiries for information relative to patent medicines should be sent instead to 535 North Dearborn Street, Chicago.

In general, the book may be recommended as a useful and sound textbook for high school pupils, well printed and well illustrated, and sold at a most reasonable price.

MORRIS FISHBEIN, M.D.

News *and* Views

From the

FIELD OF HEALTH

FOR SAFE AND SANE VACATIONS

Be sure to take a vacation, urges the Detroit health department. Too often people fail to take vacations or fail to feel the need of them when they would be greatly benefited by the right kind.

Vacations should be as different from the daily routine as possible. For instance, the city person would probably get the most good from a vacation in the country. The following things should be assured for a safe and helpful vacation:

1. A goodly portion of each day spent in direct sunlight.
2. Sufficient exercise to insure a good appetite.
3. Rest as differentiated from sleep, which will permit mental as well as physical relaxation.
4. Pure water.
5. Safe milk.
6. Wholesome food.
7. Safe sanitary surroundings.
8. Freedom from mosquitoes.

To eliminate danger of infection, be protected against typhoid fever by vaccination, boil both the water and the milk and be sure the place in which you eat is well screened.

HOW ALLENTOWN, PA., TEACHES SAFETY

Safety education is a regular part of the school curriculum in Allentown, Pa. In the first four grades safety games are played, stories are told and trips are made for observation. In the older grades the children are taught responsibility for others, with emphasis on prevention of accidents and dangers in industries.

Learning to get to school and home safely is one of the first problems attacked. The children play a traffic game in which the conditions are as nearly like real traffic as possible. Then they make trips to street intersections to watch traffic signals. On returning to school they write reports and make drawings of what they have seen.

Posters, visits to industries, a safety patrol and a safety council organization with weekly meetings are other valuable phases of the program at Allentown, described by Josephine Grainger in *Labor and Industry*.

KEEPING COOL IN HOT WEATHER

Keeping cool in hot weather depends more on the habits of the individual than on the weather. With proper food, exercise and rest, the hot weather need not be burdensome.

It should be remembered that less food is needed in summer than in the cooler months. Meats, starchy foods and sweets are the foods that produce body heat and these should be used in moderation. The diet should be largely of vegetables and fruits. Enough water should be drunk but not too much at one time, especially with the meals. All food, of course, should be carefully protected from flies and should be eaten while fresh.

Outdoor exercise is essential for health in warm weather; this applies especially to the women and girls who do indoor work. Walking is good exercise. Along with the exercise should be a daily bath to remove the body wastes brought out in the perspiration and to keep the pores of the skin open and active. The bowels, too, should be kept open; but if a vegetable diet is eaten and sufficient exercise taken no trouble should be experienced with the bowels.

EASTERN TOWN MAKES ANTITOXIN RECORD

Bridgewater, Conn., has just hung up an enviable record in the immunization of its children against diphtheria. Of eighty-nine children from the age of 6 months past the danger age for diphtheria, eighty-eight have received toxin-antitoxin, according to a bulletin of the Connecticut department of health.

The father and mother of the one child not immunized are of foreign birth and are allowing their child to run an unnecessary hazard because of prejudice.

HAVE CHILDREN EXAMINED BEFORE SCHOOL OPENS

For several years the National Congress of Parents and Teachers has been urging parents to check up on physical defects of preschool children and have defects of hearing and vision, bad teeth, tonsils and adenoids corrected in the summer before school opens.

When a child of 6 or 7 starts to school for the first time, he must adjust himself to an entirely new situation. If he begins his school life with an unsuspected handicap, he may be unfairly considered dull. Many children who repeat classes year after year have been found to have defective hearing or poor eyesight.

The parent-teacher associations throughout the country are making a special effort to have all children examined, their defects corrected and to have them vaccinated against smallpox before August is over.

ROCKEFELLER FUND HAS ACTIVE YEAR

Twenty different activities in the field of public health are covered by a recent report of the Rockefeller Foundation for 1927.

During the Mississippi flood the Foundation aided in the establishment of health organizations in eighty-five counties of the flood area and operated a field training station. It extended financial support to a considerable number of medical schools for work in public health. It aided nineteen governments to bring hookworm disease under control.

Study tours for 125 health officers from forty-four countries were conducted in connection with the League of Nations.

Fellowships were provided for 864 men and women from fifty-two countries.

Other subjects in which the Foundation has done important work during the last year are malaria control, investigations of yellow fever in West Africa, mental hygiene work in the United States and Canada, biologic research in several universities, surveys of health conditions and of medical and nursing education in fourteen countries.

Photos by Wide World

HOP, SKIP AND JUMP

This is Benjamin Moore, hop, skip and jump champion of the University of Pennsylvania. The camera has caught the champion's "hop."

HIS PORTRAIT FOR CITY HALL

"Bobby" Jones recently sat for this portrait by Margaret Fitzhugh Browne. The painting is the property of the city of Atlanta, Ga., home of the winner of many golf titles, and it will be hung in the new Municipal Building.

A DOG-DRAWN CHARIOT

A large work dog, which once pulled a milk cart in Holland, now carries a human passenger in his cart—a Springfield, Mass., boy crippled as the result of infantile paralysis.

Underwood and Underwood

WHILE MOTHER IS AT WORK

For 10 cents a day, working mothers may purchase safety, comfort and care for their children and peace of mind for themselves at St. Elizabeth's day nursery in Chicago.

International

MAKING BOOKS FOR THE BLIND

A new world was opened to the blind when the art of printing books in raised type was invented. Mrs. J. R. Atkinson, wife of the founder of a firm that prints for the blind, is shown here operating the Braille press, showing how the special plate is used.

BOXING MAKES STRONG MUSCLES AND LUNGS FOR THESE STURDY YOUNGSTERS, besides sublimating the instinct of pugnacity.

Wide World

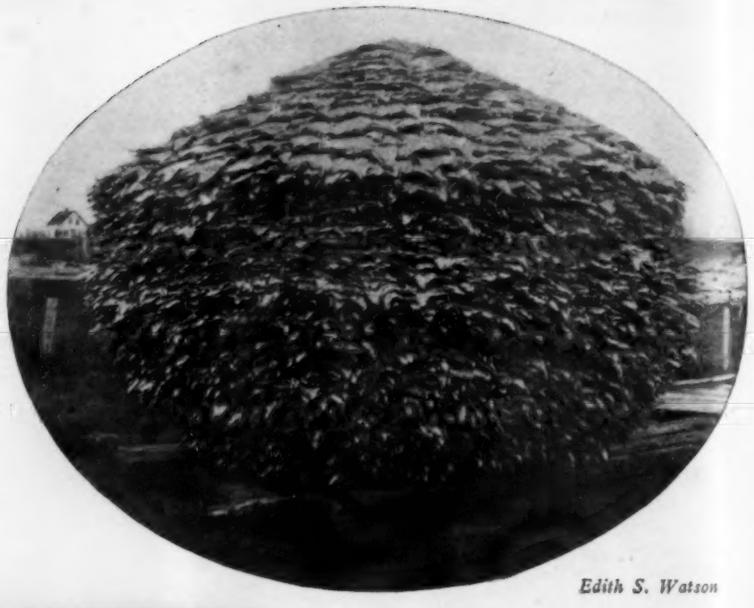
Edith S. Watson

HEADS AND TAILS

A scene at Nippers Harbor, Newfoundland, where fish are spread to dry on clean spruce boughs.

OTHER FISH TO DRY

This is not a Hottentot house. It is a pile of "hake," the fishermen's name for haddock, drying, or rather sweating, which is a part of the cure. The top of this sweat pile is arranged to keep out the rain. Stacking one of these piles is an art well cultivated in Prince Edward Island, where this photo was taken.



Edith S. Watson

Fotograms

HONORS FOR MAKER OF CAMEMBERT

Recently in France was unveiled a memorial to Lady Harel, inventor of Camembert cheese. The address is being made by M. Dentu, French senator; at his right stands M. Millerand, former president of France.

A CHILD'S VACATION BILL OF RIGHTS

The following child's vacation creed is quoted from the Des Moines (Iowa) *Tribune:*

I am a small child. This is my vacation time, for school is out. As an American citizen I have these things which are my positive and inalienable rights.

I have the right to a clean home.

I have the right to three square (very square) meals each and every day at certain definite and specified hours.

I have the right to several hours of free and unhampered play with other of my fellow citizens each and every calendar day of the week.

I have the right to spend certain portions of this play period on a supervised playground where I may learn good citizenship and how to treat my fellow citizens.

I have the right to spend the twilight hours of this playtime in my own dooryard playing ball with my dad or hide and go seek with my mother.

When the shades of night really gather, I have the right to a "piece," bread 'n' butter 'n' sugar, if it is my preference.

And then I have the right to go to a clean and comfortable bed, out of deference to which, as my mother directs, I will wash my feet.

I have the right to a bedtime story, and evening prayer and a goodnight kiss.

And I have a right to sheltered and peaceful dreams.

INCREASE REQUIREMENTS IN PHYSICAL TRAINING

A survey made by the Playground and Recreation Association of America to determine the status of physical education in the elementary and secondary schools of the country shows that there is a considerable increase from year to year in the number of schools giving academic credit for physical education. In a few states it is required for promotion. The average credit approximates 1.6 units toward graduation.

Twenty-four states reported that definite time requirements were made for physical education in the elementary grades; twenty-five states required definite time for the junior high schools, and twenty-two had definite requirements for senior high schools. The average time is about 150 minutes per week.

Physical education was found to be compulsory in twenty-one states; in junior high schools in twenty states and in senior high schools in nineteen states. In many states physical education is made compulsory by regulation of the state boards of education.

THE NATURE DOCTOR'S PATIENTS

Jack Spratt will eat no fat,
Nor will he touch the lean;
He scorns to eat of any meat,
His food must all be green.

But Mrs. Spratt will none of that,
Green leaves she cannot eat;
Her special wish is for a dish
Of unexpurgated wheat.

To William Spratt that food is flat
On which his mater dotes.
His favorite feed—his special need—
Is raw and unhulled oats.

But sister Lil can't see how Will
Can touch such tasteless food.
As mealtime fare it can't compare,
She says, with well-broiled wood.

Now, no such foods Leander please,
When he dines at the Ritz;
With sister Jane he prods his brain
With good old-fashioned grits.

But Charlie votes also for oats,
Fresh fruit appeals to May.
The junior John subsists upon
A bale or two of hay.

Corrected wheat for little Pete;
Sauerkraut for Dot; while "Bub,"
The youngest sprout, is started out
On patented near grub.

—*Northwestern Miller.*

DESIGN HEALTH CIRCUS FOR SCHOOL CHILDREN

A new project in dental health education in the form of a health circus has been designed by the dental department of the Illinois department of public health.

The health circus has everything from a galloping clown to painted tent flaps. An entrance way made to fit over an ordinary doorway is embellished with circus-like designs of teeth in all manner of funny expression portraying dental conditions important to health. On one side is a dancing mechanical clown, brandishing an armful of captive balloons with strange pictures of teeth on them.

Inside the circus entrance is a stage setting on which children sing, recite and play their parts in the program. Professional persons will accompany the circus to assist in training the children.

The scheme is designed to teach the fundamental lessons of diet, cleanliness and early professional dental care as preventives of tooth decay. The fact that 85 per cent of school children have defective teeth suggests how wide is the need for such instruction as the health circus offers.

STRICT RULES PROTECT SWIMMING POOLS

Sanitation of swimming pools has become a serious question in almost every community since swimming has become the great outdoor and indoor sport of the United States. The following set of rules are recommended by sanitary engineers to maintain the high standards of cleanliness necessary to prevent contamination.

1. Persons who have severe colds, catarrh, nasal or ear discharges, sore or inflamed eyes, skin eruptions or other communicable diseases shall be denied the use of a pool.

2. All patrons shall take a cleansing bath with soap and warm water before donning suits. Soap should be thoroughly rinsed from body.

3. Bathers who leave the plunge or enclosure for any reason shall be required to take a cleansing foot bath before returning to the pool.

4. Bathers shall be forbidden to wear privately owned suits that are not properly laundered or sterilized.

5. Women bathers without bobbed hair shall be required to wear caps while in the pool.

6. Divers are advised to wear tight rubber caps over ears or to plug ears with greased cotton or sheep wool.

7. Contamination of the pool, floor, runways, aisles or dressing rooms by expectoration of nasal discharges shall be prohibited.

8. No lunches shall be permitted within the pool enclosure and no eating whatever shall be allowed on walks or runways or close to the edge of the pool.

9. Spectators shall not be allowed on walks around the plunge, nor shall bathers be allowed in places provided for visitors.

EMPLOYEES' LUNCHROOMS AID EFFICIENCY

The provision of appetizing and nourishing food for industrial employees is regarded as an important factor in maintaining their health and efficiency, the U. S. Bureau of Statistics found in a recent survey of health and recreation activities in industry.

Of 430 companies visited during the survey, 303, or about 70 per cent, provided one or more meals for their employees. The cafeteria is the most popular type of lunchroom, offering greater variety of food and quicker service. The lunchrooms are managed by the employer or by a committee of employees. More often than not, they are run at a deficit and in only four cases was a surplus reported in the operation of the service.

Questions *and* Answers

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a two-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed.

Sword Swallowers

To the Editor:—A so-called sword swallower has recently been to our city and there has been a discussion as to whether these swords are actually swallowed the length of the blade or whether they are trick swords. Can swords actually be swallowed? Is this possible for all persons or do certain ones have irregular throats that will allow this to be done? A. E. S., West Virginia.

Answer.—There is no doubt that certain persons have actually been able to insert a sword with dulled edges into the esophagus and to push it down as far as the stomach. It is not difficult for a good many persons by throwing the head back to bring the esophagus in line with the mouth in such a way as to make this possible. Indeed, it is because of this that the instrument known as the gastroscope can be used for looking into the stomach as is sometimes done in the study of diseases of that organ.

Hay-Fever

To the Editor:—What causes a person to have hay-fever the year round? Can it be classed as a seasonal disease? What would you suggest as a cure or as a check? H. R. S., Pennsylvania.

Answer.—The more common types of hay-fever are due to the inhalation of pollens of certain flowers that are the source of trouble only during a limited period of the year. Ragweed is one of the most common offenders. On the other hand, similar symptoms are produced by various other substances that may be present at any time during the year.

Some persons, for example, are susceptible to the particles of perspiration in hairs from a horse. The presence of cats also arouses similar symptoms in a few cases. Eating of certain foods such as shell fish, eggs, meat and in rare cases milk may produce similar symptoms.

The remedy consists in finding the offending substance for any particular patient and avoiding this substance. It is sometimes possible to render the individual insusceptible or immune to the particular substance by process of vaccination. There is no specific cure for hay-fever.

Cataracts

To the Editor:—What are the most common causes of cataracts or opacities? How long do they generally require to mature? Is an operation advisable before maturity? Are serum treatments of any value? Can cataract and rheumatism come from the same cause? I have had rheumatism for some time. A thorough examination revealed low blood pressure but no other trouble nor any cause for low blood pressure. I am 28 years old; my weight is 138 pounds; height, 5 feet 5½ inches. I have had four serum treatments for cataract but it is getting worse. It has been developing about two years or possibly longer.

A. A. C., Pennsylvania.

Answer.—For a 28 year old woman to develop a cataract, there must be a definite cause. In the majority of such cases, excluding of course a direct injury to the eye, the cause lies in some low-grade inflammation of some part of the eye. As a rule, such an inflammation is so mild that it does not intrude itself upon one's attention.

Glandular tuberculosis is one of the most frequent causes of that sort of inflammation. However, it is essential that a careful physical examination, including the necessary laboratory work, be made before the causative factor is located. When the cause is eliminated, the inflammation ceases, but the progress of the cataract continues, more slowly than before, but nevertheless definitely. It is advisable in these cases to wait for full maturity of the cataract, as the operation is more difficult and bears less chance of success than in the case of simple or old-age cataract. The serum treatment for cataract is useless.

Effect of Soapstone on Lungs

To the Editor:—Is the use of soapstone on inner tubes harmful to an inspector in a rubber factory who handles them eight or nine hours a day, especially if the soapstone is thick enough to irritate the nose and throat? Could it possibly affect the lungs? Is the use of soapstone likely to produce a condition of silicosis or does it just form particles of sandstone?

N. M., West Virginia.

Answer.—Statistical and clinical studies indicate that dusts like quartz, granite and sandstone, composed chiefly of crystalline silica, cause the disease known as silicosis. Soapstone contains little crystalline silica; it is a silicate of magnesium and its silicon is combined in a different chemical form.

At present there is little evidence that the silicates in general cause this disease. They may produce irritation of the nose and throat and even chronic bronchitis but this is not silicosis. In the latter, the dust brings about the formation of a tremendous amount of scar tissue in the lung itself.

Recently there has been a report of several cases of true silicosis following the long continued inhalation of asbestos dust, and this substance is a silicate like soapstone. However, it is not known whether these persons may not have already had tuberculosis. In the presence of this disease the long continued inhalation even of silicates may become a source of grave danger.

Six Point and Nine Point Children

To the Editor:—What are 6 point and 9 point school children, according to the plan operating in Missouri? L. M. L., Kansas.

Answer.—The director of the children's bureau of the state health department of Missouri called on all state organizations interested in child welfare to cooperate with him in a state-wide six point child campaign. Under the plan devised, a six point child committee was organized in each county, with a chairman in each school district to arrange with the school authorities for physical examinations to be made of all school children at the

beginning of the school year by competent physicians approved by the county medical society. Defects found were reported to the parents and toward the end of the year every child who was found to have normal eyes, ears, nose and throat, teeth, weight and posture, or who, having had defects, had had them corrected, received, as part of the May Day Health Celebration, a six point button from the state health department. If a child had a birth certificate, he received a blue ribbon, and if he had been immunized against smallpox and diphtheria he received a red ribbon to attach to the button, which classified him as a nine point child.

It is believed that this plan will promote a keen and widespread interest in the physical examination of school children.

Migraine

To the Editor:—Within the last six weeks I have had three attacks of migraine. Previously I have not had a half a dozen attacks in twenty years. Could you suggest any reason for the attacks or hold out any hope for avoidance? I am 36 years old, have three children and enjoy good health with the exception of some headache, which until recently has never been migraine.

R. N. A., Rhode Island.

Answer.—The description of the headaches is not sufficiently comprehensive to permit of an agreement with the diagnosis of migraine. It is unusual for attacks of migraine to occur as far apart as was the case during a period of twenty years, and, again, to occur as frequently as they have within six weeks.

Migraine is a condition characterized by attacks of headache, usually affecting only one side of the head at a time. These attacks are often preceded by a warning, such as flickering spots of light taking the form of a semicircular zigzag. The headache usually lasts less than twenty-four hours, disappears after sleep, and at some time in its course is associated with nausea and vomiting. It begins early in life, occurs at first at monthly intervals, later may become more frequent, and in women usually ceases at some time after the menopause.

Measures that insure good general health are of service in the prevention of the headaches and in diminishing their severity.

Among these measures should be mentioned daily outdoor exercise, careful attention to the state of the bowels, and avoidance of large amounts of meat, fish and eggs. At times some particular article of diet, such as chocolate, may precipitate an attack of migraine. It is sometimes useful to be tested for food sensitization so that certain items of diet may be avoided.

Rosacea

To the Editor:—Can you advise me regarding the following condition? As a result of the presence of minute capillaries in the surface of the skin, my cheeks flush to a deep purple-red at the slightest exposure to heat or cold or exercise. This is purely a local condition, which cannot be remedied by diet. I have consulted my physician regarding diet and have tried various lotions, but to no avail. Is there any possible treatment? Could a skin graft operation be performed? The condition embarrasses me so much that I have shunned many social gatherings and outdoor activities. S. S., Wisconsin.

Answer.—The condition that the patient describes is undoubtedly a simple rosacea. It is advisable that the patient abstain from eating highly seasoned, hot or stimulating foods and that the eliminations be looked after carefully. There is no operative procedure that can be employed in this condition. The condition is as a rule rebellious, but with proper local treatment improvement can usually be secured and in some instances cure is possible.

X-ray therapy is at times of value but it does not have the same effect as in the more severe conditions of acne rosacea. With a proper regimen, strict attention to diet and elimination, together with the use of intestinal antiseptics and the use of proper astringent applications locally, the condition may be greatly helped.

Measles Serum

To the Editor:—Please give me information about the use of measles serum. At what age is it most effective? About how long does immunization last? Has it been tried out sufficiently?

T. D., North Carolina.

Answer.—The consensus of opinion is that the serum of patients convalescing from measles is of definite value in preventing and modifying an attack of measles provided the serum is collected and given at the proper time in a suitable dose.

The most favorable time for collecting blood is from five to nine days after the temperature has become normal, but good results are reported with blood drawn on the first or second day of normal temperature or as late as the twenty-first day. The blood is collected aseptically and allowed to coagulate. When the clot has separated (usually on the day following collection), the clear serum is pipetted off. Each lot of serum is tested for sterility and a Wassermann test is made. It is advisable to mix serums from several persons, as serums vary in their protective power.

Whole blood from convalescent measles patients may be given as soon as drawn, with or without the addition of a 5 per cent solution of sodium citrate to prevent clotting.

When convalescent measles serum cannot be procured, blood from adults who had measles in childhood is sometimes used, but must be given in large doses (from 30 to 40 cc. of whole blood).

The prevention of measles is especially desirable in children under 5 years of age (at which age the mortality is high), in sick children and in children in institutions. Infants under 6 months of age are generally immune to measles.

To prevent measles from 5 to 10 cc. of serum, or double that amount of whole blood, is injected intramuscularly, the dose depending on the age of the patient and the time since exposure. The serum is given from one to five days after exposure. The day of exposure is estimated by considering the day of the appearance of the rash as the fourth day of the disease. The immunity produced by this early administration of convalescent measles serum will last from two weeks to two months.

If any of the children in the group contract measles, it will generally be in a modified form without complications and the immunity will then be permanent.

It is sometimes advisable to modify the attack of measles and so lessen the danger of complications. Serum given from five to eight days after exposure is generally effective for this purpose. This modified form of measles produces a lasting immunity.

When human serum is not available the serum of goats immunized with green producing measles diplococci appears to be effective both in preventing and modifying measles. If given in from 8 to 10 cc. doses within four days after exposure, measles is prevented in about 94 per cent of cases; if given between the fourth and sixth days after exposure about 60 per cent are protected; when given later only a negligible number are protected. About 80 per cent of the children developing measles after receiving serum show a mild, often modified form of measles, rarely followed by complications. Serum reactions following the administration of stored goat serum are mild and infrequent.

Serum of horses immunized with measles diplococci has been used in a few cases with similar results, although the reaction is more severe.

Pigeon Toes; Constipation

To the Editor:—1. My 18 months old daughter walks very pigeon toed and the condition seems to grow worse. How can this be corrected? When standing, her legs look straight and she doesn't turn her toes in at all. She has been walking since she was 1 year old. 2. She also has a tendency toward constipation. Please send me a diet list that may help to overcome this. Should she have cod liver oil; if so, how much in a day? J. C., Iowa.

Answer.—1. There seems to be no occasion to worry about the "pigeon-toed" tendency of a child at this age. The normal gait is one in which the toes point straight forward in the line of advance, not a turning out of the toes as was formerly thought to be best. If, as she grows older, this tendency increases it is probably due to some muscular weakness and a competent physician should be consulted. If he feels it to be necessary he will refer the patient to a good orthopedic surgeon.

2. Cod liver oil may be given to a child of 18 months in doses of a teaspoonful three or even four times a day. The use of cereals, like oatmeal or bread containing some bran, and of fruits and vegetables is the usual way of correcting a tendency to constipation.

Dupuytren's Contraction

To the Editor:—A bone specialist and surgeon diagnosed a condition in my hand as Dupuytren's contraction. I have noticed this contraction only during the past two or three months but have been advised to have an operation at once for the removal of the scar tissue. Is there any danger of stiffness in fingers or hand following an operation of this kind? What results may be expected in the majority of cases? So far my hand has caused no pain or serious inconvenience. What is the cause of this trouble? Can anything be done to prevent its recurrence? R. L., Ohio.

Answer.—No one knows the cause of Dupuytren's contraction. Injury, infection and heredity have all been adduced to explain its origin. In many cases the influence of heredity can be shown.

Many types of treatment have been suggested. It is probable that the only procedure that gives an assurance of success is the radical removal of the entire palmar fascia, including its extensions into the involved fingers. This should be done by a surgeon who has given special attention to the anatomy of the hand and has had experience, for without care the nerves of the fingers may be injured, since they are involved in the tissue. The skin is also involved and at times it is necessary to remove some of the skin, in which case it may be advisable to transplant new skin.

The rapidity of growth varies. In some patients a considerable degree of disability may arise within a few months; in others a number of years may elapse before the patient notices difficulty in the use of the hand. After operation it is frequently advisable to use tension splints and physiotherapy to prevent stiffness. No serious result will ensue from Dupuytren's contraction except the disability, which will grow progressively worse.

Advertising Physician

To the Editor:—Could you advise me whether injecting serum into hollow cheeks to build them out is safe? Would the effect last for many years? I have tried face exercises and have not had results. An advertising doctor in Pittsburgh claims he has done this work for twenty-five years. Is serum a liquid or does this advertising doctor just bluff? Would he use paraffin and say he used serum? Is paraffin a powder or liquid? Do you know of any good plastic surgeon? G. K., Pennsylvania.

Answer.—It is dangerous to take treatment from an advertising doctor. All of them are frauds. The attempt to improve the facial appearance by injections of paraffin and similar materials results disastrously in many cases and is rarely satisfactory. Paraffin is semisolid at the temperature of the living body, liquid at somewhat higher temperatures.

When a deformity is so great as to demand relief, the best thing to do is to consult a well known, competent and reliable surgeon. If he advises any operation at all he is the one to decide which operation is best and who is to perform it.

Syphilis

To the Editor:—For the past year I have been doing social work among foreign families. Many of these families have syphilis and similar diseases. Is there much danger of my getting these diseases? Do you think it advisable to have a blood test about once a year, so as to be on the safe side? M. S., Pennsylvania.

Answer.—There is little likelihood of the social worker acquiring syphilis, if she uses reasonable precautions. If such an accident were to happen, the person would be fairly certain to be aware of the fact that she had become infected. However, it is not a bad plan for one engaged in such work to have a test made from time to time by a competent physician.

Enuresis

To the Editor:—Please tell me whether or not cooked fruit affects the kidneys unduly. My 3½ year old son has been eating it three times a day because he tends to be constipated. Some one has suggested that perhaps this amount of fruit is responsible for the fact that he has not yet gained night control of the bladder. He still needs to be taken up at least three times between 6 p. m. and the time he wakes in the morning, and even so, is often wet. He is taking only 1½ pints of milk a day now, none of it later than the noon meal, and rarely drinks water after noon or any other time except when it is very hot. He eats green vegetables for dinner and supper, cereal three times a day, besides one egg for breakfast and juice of a small orange with mineral oil a half hour or more before breakfast. Is it true that orange juice before breakfast is trying to some persons? A. W. D., Maryland.

Answer.—The child's symptoms suggest some trouble in the urinary tract and it may be that a correction of the condition there would relieve both the frequency of urination and constipation. It seems probable that neither of these complaints will be cured by dietary measures alone. It is a poor practice to limit the intake of fluids for sixteen hours out of twenty-four, as they are very valuable to a growing child. It would be much better to take measures to correct the frequency.

Cooked fruit tends to make the urine alkaline and will not injure the kidneys. Three servings a day are in excess of the child's requirements but will do no harm.

Cereal tends to make the urine acid and when taken three times a day may more than neutralize the alkalinity produced by the fruit and also may so satisfy his appetite that he will not eat a sufficient amount of other food such as vegetables and eggs.

There seems to be no foundation for the belief that orange juice is trying to some persons.

Milk

To the Editor:—I should like to to know whether milk loses its vitamin content on being pasteurized or made up into custards. F. E., Washington.

Answer.—The percentages in which various vitamins in milk may be destroyed in these processes is not definitely known. It is safe to say, however, that the content of vitamins A and B is not seriously affected in the process referred to, but that, on the other hand, the content of vitamin C is seriously affected.